

DOCUMENT RESUME

ED 156 279

JC 780 375

TITLE Focus on Learning. Proceedings of the National Conference on Innovation, Diffusion, and Delivery in Education. (Newport Beach, California, March 6-8, 1978)

INSTITUTION League for Innovation in the Community Coll., Los Angeles, Calif.

PUB DATE Mar 78

NOTE 116p.

EDRS PRICE MF-\$0.83 HC-\$6.01 Plus Postage.

DESCRIPTORS Cognitive Style; Community Colleges; Computer Assisted Instruction; *Conference Reports; *Delivery Systems; Developmental Programs; Educationally Disadvantaged; Educational Objectives; Educational Theories; *Instructional Innovation; *Junior Colleges; *Learning Theories; Multimedia Instruction; Social Change; Student Motivation

ABSTRACT

This proceedings contains the full texts of five keynote speeches: "The Continuing Challenge of the Disadvantaged Student" by Nolen Ellison; "Fostering Creativity in the Teaching-Learning Process" by Norman Watson; "From Junior College to Community College and the Significance of the Change" by John Dunn; Robert Heinich's "From Learning Theory to Instructional Theory;" and K. Patricia Cross's "What World Happen If...?", discussing college goals and maximum learning for every student. Abstracts of 20 additional papers are presented. Papers deal with success in developmental education, biofeedback and adult motivation, the community college in a changing society, demographic analysis of curricular and service activities, developing materials for audio-tutorial and computer-based learning systems, computerized career guidance, federal funding for creative teaching, academic radio programs for the handicapped, split-brain research, faculty perspectives on innovation, vocational skills centers, instructional television consortia, cognitive style and general ability, memory theory, college student motivation, field-dependence and independence to place students in courses, the mobile education concept, and cognitive style mapping in instruction. (TB)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED156279

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY
League for Innovation
in the

Community College

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC) AND
USERS OF THE ERIC SYSTEM."

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-
DUCED EXACTLY AS RECEIVED FROM
THE PERSON OR ORGANIZATION ORIGIN-
ATING IT. POINTS OF VIEW OR OPINIONS
STATED DO NOT NECESSARILY REPRE-
SENT OFFICIAL NATIONAL INSTITUTE OF
EDUCATION POSITION OR POLICY.



JL 780 375

**Proceedings of the
National Conference On Innovation,
Diffusion, And Delivery In Education
March 6-8, 1978 • Newport Beach, California**

TABLE OF CONTENTS

Keynote Speakers (Full text of presentation)

"The Continuing Challenge of the Disadvantaged Student" Nolen Ellison	1
"Fostering Creativity in the Teaching-Learning Process" Norman Watson.....	23
"From Junior College to Community College and the Significance of the Change" John Dunn.....	37
"From Learning Theory to Instructional Theory" Robert Heinich.....	43
"What Would Happen If. . .?" K. Patricia Cross.....	66

Abstracts

"Advancement Studies: Some Successes in Developmental Education" Thomas E. Griffin.....	83
"Biofeedback, Self-control and Adult Motivation - or What It's Like to be Human" Robert B. MacIntyre.....	84
"The Community College in a Changing Society" Bernard J. Luskin	85
"Demographic Analysis of Curricular and Service Activities - or Antidote to Seat-of-the-Pants Decision Making" Angello Segalla.....	86
"Design of Materials for Audio-Tutorial and Computer-Based Learning Systems" Robert Miller and Richard E. Ballard.....	87
"Developmental Studies: Whose Responsibility?" Ruby Herd.....	89
"DISCOVER: The Computerized Career Guidance System of the Future" Hal Schrupp.....	90

"Federal Funding for Creative Teaching: Some Perspectives"	92
Helena Howe and Stanley Patterson.....	
"Handicapped Enrichment Through Academic Radio"	93
Larry Cobb and Margaret Vernon-Holt.....	
"The Implications of Split-Brain Research for Education"	94
Kathy Lutz.....	
"Is Innovation a Four-Letter Word? - A Faculty Perspective"	95
Noel Korn.....	
"A Look at SIGI, an Interactive Computerized Program in Decision Making"	96
Cynthia Johnson.....	
"Motivation of Students via Vocational Skills Center"	97
William Dabney and James E. Trocki.....	
"Putting It All Together: Consortia At Work with Instructional Television"	98
Sally Beaty.....	
"The Relationship of Cognitive Style to General Ability"	100
Robert Casey.....	
"Some Practical Aspects of Memory Theory"	101
Thomas Nelson.....	
"Understanding the Motivation of Community College Students: Implications for Instruction"	102
Myron H. Dembo.....	
"Using Field Dependence/Field Independence to Place Students in Courses"	103
Bill Rosenthal.....	
"Using the Mobile Education Concept"	104
Eleanor R. Frasier.....	
"Utilizing Cognitive Style Mapping in Instruction"	105
Harryette Ehrhardt and David Sims.....	

Note: The session by Rita and Stuart Johnson on Self-paced Packages was unavailable for abstracting.

"The Continuing Challenge of the Disadvantaged Student"

Dr. Nolen Ellison, President,
Cuyahoga Community College

Introduction: Dr. Jack Scott:

It's a pleasure to preside at this session and to have the opportunity to introduce our speaker. I come from a very unique experience in my own life, in that I became a college president yesterday, and here I am at a conference today, and I serve over at Cypress College, and so far it seems like a piece of cake to me. I have all the honor and none of the responsibilities. But you see me in two or three months when I look more battered and bruised, and then you can tell me that, "I told you so."

Dr. Nolen Ellison is probably known to most everyone in this audience because of his leadership in the community college movement. He has a varied career. He began as a high school teacher and then moved into community college in a unique way, being elected to the Board of Trustees which of course brings to his leadership in the movement a unique perspective. He possesses the Bachelor's degree from Kansas University, the Master's degree from Hampton Institute, and the Doctorate from Michigan State University. He has held numerous positions in community colleges. From 1972 to 1974 he served as president of Seattle Central Community in Seattle, Washington, and since 1974 he has been the District Chancellor of Cuyahoga Community in Cleveland, Ohio. In the city of Cleveland he holds quite a number of responsible positions, being on the Board of Trustees of the Downtown Cleveland Corporation and the Board of Trustees of the Cleveland Scholarship Program. He is also on the Board of Directors of the American Association of Community and Junior Colleges; he is on the Board of Directors of

American Association of Higher Education. His list of accomplishments and affiliations is quite long, but I don't want to take any more time away from his speech, because I know that is what you are interested in hearing, and therefore, I am pleased to present to you at this time Dr. Nolen Ellison.

Nolen Ellison:

One of the things that Jack Scott will find out tomorrow - Jack, there is another conference on your third day at work that the board has arranged for you to visit, and they told me to let you know that; and in fact it won't be quite as easy when it all gets settled back in. But do let me extend my congratulations to you for your leadership role in Cypress College, and welcome to the I'm-not-sure-so select group. Thank you, Jack, also, for those kind remarks. For those of you who have come to this lovely location for the League for Innovation conference - I don't know whether Terry O'Banion is in the audience or not - at breakfast this morning I was informed by Bob Leo, and I will inform the board of the League, Bob, that we are now looking at this hotel to purchase it for League for Innovation conference center. Pat Cross told me that she was staying an extra day, which is highly unusual for her to spend an extra day at a meeting. I understand that she is staying to make sure that the arrangements are all proper, and once a year she would be the professor in residence at this major national conference center.

I was pleased when the invitation was extended to be here today to reflect on what I think is a continuing, major, national set of concerns among and between and within the community college community. That is the question of the so-called "disadvantaged student" and the challenge to me to present something to this conference body that might relate a perspective on the issues that would allow us to not only get a better view of the question but some notion of perspectives on the future.

I should first say that I'm pleased because as a member of the League for Innovation - that is, Cuyahoga Community College District - like the other 15 districts in the nation, have committed themselves as part of a family of institutions within this consortium to come together on periodic occasions to not only raise important and significant questions in the community college field, but also to bring to bear the collective resources, knowledge and know-how to see if, in fact, we could not make significant impact on the improvements in our institutions, the educational programs of our colleges, and indeed, by doing that the future of American two-year colleges as we attempt to live through the promise of an open-door quality to higher education beyond high school, for the millions of Americans that are not only deserving but require the focused attention of our kind of institutions.

The topic stated in your conference program for this morning has been slightly altered, somewhat to convey a more focused, contextual framework for my remarks and their implications. The topic that is listed, "The Continuing Challenge of the Disadvantaged Students," I placed a colon behind it and suggested, "The Unfinished Business of the Nation's Community College."

This topic is premised on the assumption that community colleges throughout the nation, and certainly those colleges located in the country's major urban, metropolitan areas, have not yet fully delivered on their promise to millions of Americans that our institutions could meet their education and training needs. Further, the pressures to serve larger numbers of non-traditional and disadvantaged students are likely to increase rather than decrease in the immediate years ahead. Therefore, the leadership in the community college movement, and those of you here today that have come to this conference, must assist at the national, local and regional levels both institutionally and, indeed, through instructional programs, to increase the responsiveness to a larger segment of the American population that

are not only going to demand that our institutions meet, increasingly, their needs, but that this new clientele that has appeared at our colleges in the sixties and seventies, indeed can be reinforced that our kind of institutions are not only sensitive but responsive to their needs.

The pressures for increased institutional responsiveness are likely to be felt most acutely in the immediate years ahead in the major, urban community college districts, encompassing cities such as Los Angeles, San Francisco, Detroit, St. Louis, Kansas City, Cleveland, Chicago, Newark, New Jersey, Philadelphia and Washington, D.C. as well as New York City. I am reminded of Newark, New Jersey, and the dilemmas of that institution - one of our sister institutions in the national community college movement - who just a week ago faced the traumatic dilemma of changing presidency - and Jack, the question of the role of the president here - in such a traumatic way that the board of trustees had to halt, literally, the operation of that institution because of the concerns as to whether or not that institution can respond adequately to the needs of Newark, New Jersey.

That kind of political issue becomes an educational issue, becomes the kind of issue that those of us committed to the field share joint responsibility to see that our institutions somehow can respond in proper and appropriate way to the multiple expectations of our communities - the communities which we serve.

Additionally, community colleges serve in such areas as Appalachia - the Appalachian region - selected regions in the Southern United States; and those Federal-designated regions containing Indian reservations and Alaskan populations, undoubtedly will face challenges very similar to the community college districts serving large numbers of non-traditional students residing in America's highly urbanized areas. Suburban and non-urbanized community college districts will increasingly face the challenge of providing quality educational opportunities and meaningful learning experiences to a more diverse range of American citizens than might have been expected only ten short years ago.

Meeting individual differences and needs will increase as a challenge to all of our institutions, but I would suggest and what I am trying to suggest is that while I would like to cite maybe some of the more extreme concerns - the highly urbanized and selected areas of the country as we struggle with the issue of the disadvantaged - it is absolutely clear to me that the suburban and the non-urbanized institutions, however we define them, are going to be part and parcel to the answer, in the long run, to the community college movement's ability to meet adequately the promise of the open door that we've postured.

While my observations this morning are intended to make a special case or argument for community colleges that by location or special mission are simply obligated to meet the increasing challenge of the disadvantaged students, all the professionals at all levels in community colleges must see the eventuality of the response to the concerns raised as our society becomes more mobile and more demanding, and in fact we must become more responsive as public institutions and agencies.

Learning deficiencies not corrected in the public school sector of the nation will continue to place demands on higher education generally, and community colleges specifically, to respond both to the developmental needs as well as the remedial learning needs of students - two distinct impressions in my mind regarding the society which exists today and which our institutions must address. The recent ERIC report entitled, "Higher Education Opportunities: A Decade of Progress," portrays a decided contrast to the Howard University Institute for Educational Policy reports, one titled, "The Changing Mood in America: Eroding Commitment," and two, "Equal Education Opportunities: More Promise than Progress."

These latter two reports, buttressed by the recent New York Times survey of national conditions ten years after the Kerner Commission Report of 1968, and

the just-released report of the Carnegie Council on Children, suggest a grim if not totally pessimistic outlook, if we were to assume community colleges are vital parts of the national resources, necessary to address properly the continuing concerns for equal educational opportunities and social justice.

Both of the Times reports suggest a society drifting further apart on racial, economic and social criteria, in fact reaffirming the report of the earlier Kerner Commission that somehow society is becoming both more separate and more unequal. My strong feelings are that community college must, indeed, be viewed as central to the nation's efforts to address the upward mobility requirements of millions of citizens seeking better lives through broader higher education prospects and opportunities. What, then, are the specific implications for community colleges and the mission which they have prescribed for themselves in higher education? Or in the postsecondary education arena?

Rather than engage in the philosophical debate regarding the propriety of the community college mission, I believe it would be more fruitful for community college professionals to reach agreement regarding the nature of the problems confronting our institutions and the broader society, and prepare sound institutional plans and programs capable of addressing them in a responsible, educational fashion. The nature of the challenges now confronting our educational institutions, as well as the professional leaders engaged in direct teaching and indirect educational support responsibilities, suggest that anything less than a cooperatively developed and supported, comprehensive, instructional and student-development program designed and focused on the needs of disadvantaged students falls short of any meaningful impact on the problems currently confronting the teaching-learning environment as we know it today and as we are likely to know it in the future.

The promise of universal access to American higher education and, parenthetically, not to be confused with universal attendance, has become a reality for those American citizens desiring to go to college and who are able to forego immediate earnings to support themselves and their families. This has been possible primarily through the expansive growth of low- or no-tuition community colleges, and the related availability of local, state and federal student financial aid. Two-year colleges now enroll a significant proportion of its students from that portion of the American population that was not attending institutions of higher learning in 1960. Large numbers of minority students, returning women, mature or senior citizens, handicapped students, and veterans are indeed now the community college. Many of these students are on our campuses as a result of the removal of financial, physical and psychological barriers that might have prohibited their attendance, historically, in our institutions. Many are there because their high school achievement levels were not good enough to allow them to go directly to the university, and yet they lack the job skills and requirements to enter meaningful employment in the world of work. Many of them are not sure of the career options open to them or the personal price which must be paid in order to gain the skills and competencies required. A significant proportion of this new clientele, as well as an increasingly large percentage of the historically 18 to 21 college-going student populations, have brought with them the historical as well as the current disadvantages that we talked about - those educational, economic and social. The expectations are that our institutions can and should aid such students in overcoming those barriers which prohibit student learning, achievement and/or otherwise have successful experiences in higher education.

The New York Times on Sunday of this week, March 5, reported on a City University of New York report which disclosed just last week a somewhat

depressing, but indeed familiar theme, and that being that students are coming out of high school underprepared. This data has indeed become much more blatant not only because it happens at CUNY, but indeed, most of the test results and most of the achievement results - high school seniors are increasingly predicting this condition. The specific report further indicated that 1) even high school graduates with good grades often lack basic academic skills; 2) that 20% of the classes taken at CUNY at the Freshman and Sophomore levels are in remedial work. It was noted that the cost of offering such special help at CUNY alone is \$30 million or more each year. Thirdly, in 1970, the first year of open admissions, 25% of the students who entered college with high school averages of 80 or above did not possess academic skills sufficient for college-level learnings. And lastly, in 1976 the report suggests that 37% of the total undergraduate enrollment at the City University of New York has taken remedial - are taking now remedial courses. The report indicated that the situation was getting worse, not better. The situation or condition at CUNY is being replicated or duplicated at all major, urban colleges and universities. Community colleges, I believe, reflect probably comparable statistics, if not more significant data in this area related to both remedial and developmental work required - students who are seeking now not only access but exiting from our institutions.

If the goal of our institutions in dealing with the new or disadvantaged students - that is, the new clientele which contains a large segment of students that bring disadvantaged conditions with them - if our institutions are to serve them more effectively, a number of steps must be taken, I believe, immediately. This must be done if access is to be buttressed by acceptable retention rates, parenthetically, even for intermitting students taking a course or two at a time, a profitable learning experience and graduation at program, if this indeed is the aim of our students.

Community colleges serving large numbers of students requiring special assistance in order to have a successful education experience must adopt an aggressive institutional posture, I believe, with respect to the following: First, an institutional focus on student-centered, competency-based instructional modeling with clearly prescribed outcomes and accountability. Secondly, the establishment of remedial and developmental courses and programs in reading, writing communication skills, math and human potential development. I will reflect in a few moments on what I call a human potential development, because I believe that one of the areas of our institution where we have not yet fully come to grips with the demands and requirements of the so-called "disadvantaged" student is in the area of personal, human supports, oftentimes outside the classroom. And thirdly, commitment of institutional resources in an institutionally sound, programmatic structure, capable of supporting a holistic program approach.

The focus of the general session speakers of this conference will each address elements of a holistic program design, necessary I believe, to meet both the unique as well as the general needs of the so-called disadvantaged student. The application of sound teaching/learning theory as well as the fostering of creativity in the teaching/learning process are central ingredients in a properly planned developmental or remedial program designed to meet the needs of the disadvantaged students. Professionals trained in counseling and other facets of student development or student personnel work must play an increasingly larger role in supporting systematic programs designed to remove barriers to student learning, academic achievement and personal success of students. Efforts of the American College Personnel Association, over the past five or six years now, to develop functional models of student development and to disseminate information related to these models is a continuing and important effort in the conceptualization of a more centralized role for student personnel professionals in meeting the needs of

our new students. I say this with some degree of feeling and sensitivity to the question of counseling. In our own institution and in the midwest region of the United States where our institution is located the continuing debate about the role of counseling versus advising, the debate relative to those essential and required support systems beyond the classroom are yet rampant, with very little cohesion, as to where these professionals fit into the long-run resolve to the difficult problems that we face.

Special program efforts designed to serve the needs of the disadvantaged students will, of necessity, in the future have to be developed, I believe, in the face of declining resources, productivity requirements and faculty unionization. The unique leadership for these program efforts will require professionals sensitive to human needs, possessing strong interpersonal skills and the ability to facilitate change in a positive way. Meeting the continuing needs of the disadvantaged students through the allocation of marginal new dollars as well as the reallocation of existing resources will be a serious challenge, not only to our institution, but to each of us who are committed to the notion that all students can learn. It is our responsibility and our institutions' to provide the support system and the direct interface with these students, to assure that that becomes a truism.

One ability which is important now, and will be more so in the future, is the ability to obtain and channel whatever institutional resources, as well as special federal and state categorical program monies, to direct them to the support of those programs within our institutions that are indeed designed to achieve student success among the non-traditional or disadvantaged student populations.

Regarding the unfinished business of the nation's community colleges, I went through my library to remind myself that the questions that we are posing and addressing in this portion of the program are, indeed, not new questions.

The nation's commitment and unfinished business in the area of staff development is one that simply must be turned to in a much more aggressive way in the future than we have been able to deal with it in the past. The reports of Terry O'Banion to the federal government and the related publications that came out several years ago, as well as the AACJC Assembly Report, "New Staff for New Students," reminds me that the unfinished business within this specific area has a great deal to do with staff development. Ed Glaser's report in 1974 to the national meeting suggested recommendations for the Bicentennial year 1976, 1979 and 1980. I went back and tried to do a mental calculation from his recommendations to the national community college group entitled, "Beyond the Open Door;" I'm sure there's unfinished business there.

The whole instructional development area - individualized, competency-based instructional program modeling - the unfinished business there is absolutely essential in terms of our being able to address in a humanistic oriented, a planned approach, at not only developmental education but remediated education for an increasingly large portion of our student bodies. I am reminded because our district was one of six districts participating in a major national study in 1972-73, publication by Palola and Oswald on urban multi-unit districts, in which these two gentlemen after having reviewed systematically these districts that had major units located in the inner cities of the downtown areas of major, urban metropolitan areas, suggested as a result of their research three of six major recommendations that I thought were important and at least I again note.

First of these was that after their review of six major, urban districts across the country in 1971 is that the frustrations experienced in designing and implementing appropriate developmental education activities were found to be numerous and sometimes overpowering.

The second observation they made at that point was to reach the educational needs of low income and educationally under-prepared students, special education efforts must break through the traditional, bureaucratic rigidities and other constraining environmental circumstances that most of these institutions are facing.

The third observation they made was that postsecondary education in major metropolitan areas will make significant progress toward equal educational opportunity for all, regardless to need, will very likely be made to the extent that key individuals and agencies will be fully committed to developmental education, willing to finance this type of education activity adequately, and able to share in the control of inner-city colleges, including the programs offered, personnel hired, and evaluations made of the programs that these institutions run.

They suggested in 1972 that, however, the lack of commitment and lack of funding and over-centralized control in programs that simply must be flexible, are the key barriers to effective education for inner-city students. I suspect it was the report of these two gentlemen working out of the University of California at Berkeley - John Dunn will be here tomorrow - he was one of the supporters of this early work in major urban two-year colleges. The observations made in 1972 are probably more true today than they were five years ago - six years ago now - that these recommendations were made.

It would be my observations that the unfinished agenda, the unfinished business of colleges attempting to respond to the needs of the disadvantaged and the students requiring special help in order to succeed properly in our institutions, is at best treading water. Let me reflect on a couple of conclusions from my perspective. The record and results of institutional efforts of the past ten to fifteen years, in addressing the needs of the disadvantaged student, is at this point unclear. Because of the complexity of the needs presented by the disadvantaged student, it is probably safe to assume that our institutions continue to experience

spotty successes in programming successfully in this important area. While much has been done, much yet remains to be accomplished if community colleges are to meet the needs of an increasingly large pool of students, not only requiring but demanding remedial classroom assistance, as well as developmental program supports in our institutions.

Addressing these demands in the face of declining resources projected for the future will be no easy task. What will be needed are dedicated professionals willing and able to do more with less. Leadership capable of meeting this task, in my view, will become increasingly important. I view this conference this week in part, not only to look at a focus on learning, but to focus that focus on learning towards the most critical problems that our institutions, not only regionally but nationally, face and to come away with new resolves in terms of new techniques, new approaches, the kind of innovations that are essential for us to do the kind of jobs that would help pans not drop in the kitchen.

It will be important in the immediate years ahead that community colleges validate clearly in the public mind their catalytic roles as community-based institutions capable of addressing education, career and coordinated institutional programs able to address the needs of an increasingly urbanized society, and one which must, through education, meet the rising demands for both well-educated citizenry and persons trained adequately to move into the world of work. The community college must demonstrate its central role in planning and programming for broadened base of access and opportunity for those millions of Americans who can and must benefit from postsecondary education opportunities offered through our institutions.

Let me suggest that the League for Innovation not only has today but maintains a central, vital, national role in assuring the kind of diffusion, the kind of

innovation, the kind of applications, that not only would bind suburban and urban colleges together around central themes of teaching and learning, but around the prospects for the kind of innovations that will make all of our professional responsibilities much more palatable as we face the difficult days ahead and the tasks ahead.

The pressure for sound programmatic approaches to the needs of the disadvantaged will be greatest, I believe, in America's major urban centers, selected regions of the South, in Appalachia, and in special federal-designated areas. It is in these areas that the largest numbers of non-traditional or new students reside who will bring to the institutions with them those disadvantages that I've focused upon which need special attention through special programming and special professional efforts within our institutions.

I believe that innovations and experimentations with the curriculum in non-urban or targeted areas will be critical as community colleges in urban areas address these unique needs of the disadvantaged students in the future, and that is the need for institutions that are on the cutting edge of innovations to not only share and diffuse those innovations back to other institutions that somehow have made us believe that institutions - community college institutions - are somehow different in their role, their mission and their function. I believe the role, mission and functions are the same regardless to where community colleges exist. The question is, "How do we attack the problems?" and a way of sharing resources, sharing new knowledge and diffusing that new knowledge into successful programming efforts. Successful programs will undoubtedly be those programs designed around sound teaching-learning theory and strategies, creative approaches to the learning process and practical programs of student development which are integrated into the overall learning and student support systems of our institutions.

I, say for a better term, call the question holistic programs - programs that are well integrated between the student development, instructional development, education development, developmental education. Programs that are integrated in such a fashion that we don't create new ghettos within our own institutions, of whose responsibilities it is to serve the so-called disadvantaged students.

The unfinished business of the community college in meeting the challenges of the disadvantaged student, I believe, are many. Renewed attention and commitment at the national, statewide and local institutional level will be required if, indeed, the promise of the open door and the prospects of success with students are to be achieved in the future.

I have tried to indicate a perspective on the issue. I'm told that there are microphones in the audience. Jack Scott and I agreed as to how we might handle any questions. I indicated to Jack that if there were questions while I was at the podium I would try to respond in terms of my own remarks, and that I would do that because I see some faces in the audience the questions from whom I've answered at least the last two or three years, and so I know when maybe to give a short answer and when to try to elucidate on the issue. Questions are asked oftentimes in several contexts: one, to bring out additional information; two, to suggest a perspective. I would for the next few minutes - Jack, I don't know what kind of time we have - it's 12:45 in Cleveland, so we're late. Over the next 10 to 15 minutes if there are questions we could respond to we'd be more than pleased to try:

Q: Dr. Ellison, I was interested in one of your final comments - was interested in the whole thing, but especially in one of the final comments concerning the creation of ghettos inside our institutions. Now, were you alluding to the type of program for the disadvantaged that separates these students into a separate division, so to speak, or did I read something into your comments?

Dr. Ellison:

My suggestion was where we unnecessarily create separate structures that somehow are not defined within either sound institutional or educational concepts, that those kind set-aside or special efforts, in my view, help to distort the real problem that we are now facing in trying to deal with the disadvantaged student. Let me give you one example: and this is not to cast aspersions on my own institution, because it is part of the challenge that we face, and we have, I think, seven people here today, and someone suggested that they didn't have to come all the way across the country to hear the chancellor of the district they came from. And yet one of the realities that I've tried to suggest in my own institution is that if you have an upward-bound program and its primary focus and function is in the developmental education area and in the special counseling, support system area, and you place it in community services both separate and distinct from the mainstream of what an institution's about, then I think in one instance you've doomed that program to failure because somehow those students will never see the institution as a reality; and the teachers in the English course, in the General Studies course, in the General Education course will always say, "but that's okay; send that student to upward-bound." It's located down the street some place, but not really legitimately part of the community college.

I make the distinction as unnecessarily separated, both in an institutional structure way as well as in a way that would not portend the kind of educational substance that ought to be in those programs to help integrate students into a total curriculum, into a total learning philosophy, into a total institutional program. The same thing happened with Black Studies, Ethnic Studies and many of the other new ghettos inside of our institutions.

Are there any other questions or any other observations? Very seldom do you have a chance to give a speech at a national meeting. Many people, I suspect - so you have a chance now to give a speech or raise a question.

Q: (inaudible)

Dr. Ellison:

There are a number - let me redefine what I mean by successful integration. I did not mean my comments to be overly pessimistic. I suggested that I was sure there were spotty successes, not only in our own institution, but nationally as we have tried to focus on the real questions involved in this developmental or disadvantaged student area. Many of the learning skills laboratory programs that are adjacent to, whether it's English Departments, Math Departments, Communication Skills Departments - there are many of the open-skill laboratory programs that are in the center of our Learning Resource Centers. That is, the library of the Learning Resource Centers, the primary focus and function of those centers is one of teaching and learning. In our own institution we have just a large number of success efforts related to modeling inside the core of the institutions. The issue is whether the activity is, indeed, occurring at the core of our institution or whether it is occurring so far out on the periphery that no one really cares about what is happening there. Ruby Herd, From Dallas, is going to be on the program and has some observations on some successful modeling in Dallas. We have, I think, as I read the program, there are at least three or four other presentors who will be presenting about successful modeling in their own institutions. My comments were not to suggest that we were not having successful models, but my suggestions were very strongly in the direction that we must have a new way of defining what these programs are about, and that is teaching and learning and student success.

Q: (inaudible)

Dr. Ellison:

Let me back up and say one of the parts of the unfinished business is that we

have no common language in the field today. And that's a problem. Any discipline that is indeed a true discipline develops first of all a common language so that those who are trying to communicate with the discipline are able to conjure up and have the same understanding and meaning to terms that are being used within and without that discipline.

This area of developmental education, remedial education, special support services, general curriculum, special studies departments - it's not real clear to me so I would not be a prophet in that regard to indicate truth about the difference between what I might call developmental education and remedial education. I suspect there is a great deal overlap. The developmental side says that students have potential - I think the term itself, in my view, developmental says that the student has potential, has qualities and abilities and they simply lack full development. So a developmental program, whether it's in the counseling side - and then we move into the question of human potential, seminars in which we try to help re-inculcate new values or improved perceptions of self, perceptions of personal worth and dignity that has heavy dose on the motivational side - that is, developmental, in my view, implies on the for-counseling student development side, that kind emphasis. In the classroom it says that every teacher is a developmental instructor in that sense, then. If we say that students come to our institutions, to our classrooms, lacking certain skills and knowledge and information to be better in that discipline, then every teacher is, indeed, a developmental teacher in that they are helping that student or those specific students to acquire the kind of knowledge and skills to move on to some kind of level of performance, level of competency that allows the student to be what they want to be.

Remedial education - and I read the literature and the literature that comes out of Texas and out of Pennsylvania and out of California and out of Ohio - remedial is nearly a pejorative term, in my view - I'm not suggesting that you do

away with it; I'm simply saying that in my view - it might be true that students need remedial attention, that is, to go back from where we might be to somewhere else, does not connote or denote where it is you want to go with that kind of educational opportunity or activity. So remedial math doesn't really mean anything unless you describe where it is you started, where it is you want to go with that student. That is the same question, of development that comes into play. These are personal biases, personal perceptions. It seems to me that in this whole area I'm arguing, an argument that I have at least tried to pose of the last several years, that developmental education and remedial education is nothing more than one end of the spectrum in education development; that is, individualizing, humanizing the curriculum so that we meet, not only the diverse, but the unique individual learning needs of the students, has to be fundamental and basic to whether it is called "remedial" or "developmental" education in the broader institutional setting. Now, I'm sure I didn't answer your question specifically. I turn to Pat Cross and to all of my education psychologist friends that are really learning theorists and people who have, indeed, had access to the data and understand the psychological phenomenon of cognitive style mapping and all of the cutting-edge questions of adaptation - student adaptation to curriculum; and I think what I'm suggesting is that maybe one of the pieces of unfinished business in this whole arena, ten years later, is some kind of common language so that as 16 community colleges across the nation attempt to put in place various elements of the total system that we all can understand clearly what is going on, what are those parts that can help us, regardless to what part of the country we're in.

Q: (inaudible)

Dr. Ellison:

There is little question in my mind that, as our culture becomes increasingly pluralistic, as we recognize the legitimacy, which is why I did not use the term

"cultural disadvantage" - I talked about the social disadvantages and the economic and the educational disadvantages, that I think many of our so-called disadvantaged students bring. Our culture has not recognized the legitimacy of certain other cultural attributes, that are not disadvantages, but are indeed bicultural and bilingual - your term in terms of describing specific phenomena - I believe that our institutions are going to have to become more cognizant, must recognize more directly and must facilitate the development of legitimate bicultural, bilingual, and in some parts of the United States I can carry that on into other areas of human growth and development, but I won't. But the legitimate pluralism of a society has to be recognized by our institutions. Now, what we do about it is another question. I think we are going to continue to get ad hoc responses, depending upon where the institutions are. If you happen to be in downtown Los Angeles, and there is a significant population of Spanish-speaking Americans, the pressure for legitimate recognition within a total institutional setting of bicultural, bilingual programming is probably going to be much greater than if you were in a community where there were no Spanish-speaking individuals. But that argues the position that all community colleges don't have to be alike in terms of their programming, but they must be responsive to the local citizens and communities which they serve. I, personally, have strong commitments in that regard.

Q: (inaudible - long)

Dr. Ellison:

I think there is no difference of opinion from what you've stated. My comment was that we have to now get beyond the philosophical debate and we must get on to a sound educational definition of the problem rather than engage in what I committed myself a number of years ago, after having seen a VISTA poster, the war on poverty and the VISTA business - there was a big poster that was given to

me one day, and as I said it's in my job with model cities. And it said, "You're either part of the solution, or you're part of the problem." And as I go throughout my own institution, and there are great philosophical debates about the value of belief or the ultimate theoretical value of any program that is not general-education oriented, I've tried to say that those are legitimate concerns that I think philosophers and ethics professors ought to debate.

But the institution has to get on with the much larger institutional agenda that is educational-based, and what you are suggesting is, I think, absolutely clear and necessary - and that is that we define in educational terms the nature of the problem that we are facing and get on with the business of resolving those problems with sound education theory and practice rather than engage, spend time over the coffee hour and the coffee klatch, trying to re-invent the wheel or trying to redecide whether we have a problem. And I think 15 years later, from 1960 - 17 years, 18 years now - it's not only 1:00 in Cleveland but it's two years behind - we have to get on with the business now of sound theoretical programming, and again I come back and say Pat Cross' comments, Mr. Heinich's comments yesterday afternoon, hopefully the comments from Norm Watson from the Coast District talking about the use of television, hopefully the comments of John Dunn suggesting the new roles of community colleges - all fit within an educational context, in which we are trying to define the problem from that perspective rather than from the perspective of debating the issue as to whether or not a student is disadvantaged or more disadvantaged than an advantaged student - that is a counter-play on terms and language.

Let me say that I've appreciated the opportunity of this kind of session, and this kind of conference has in my view a rather unique, circumscribed relationship to all of the issues being discussed, and I had some dilemma, some trauma, in trying to decide what kind of focused remarks would make my comments not sit outside

the context of the much broader conference theme. That is, I think we've talked too much about failures and identifying the problems. I think what we now have to do is talk about how do we move from where we are in 1978 - I wanted to suggest the unfinished agenda in this whole area, and encourage you as professionals in the field, members of the League colleges, those of you who are outside of the League colleges who simply thought a couple of days in sunny California would be great, that you carry away with you a notion of this issue of the disadvantaged student that somehow can benefit and must benefit from the broader context of instructional and educational improvement within the total institutional setting - thank you.

"Fostering Creativity in the Teaching-Learning Process"

Dr. Norman Watson, Chancellor
Coast Community College District

Introduction: Dr. Terry O'Banion

Norm Watson has just about done it all. In the 50's he led the way in the application of computers to education. In a recent study, the National Science Foundation of Computer Use and Education cited the Coast Community College District among the top 1% of colleges and universities, including four-year colleges and universities, in the use of computer education in the United States.

Norm built the program of educational television in his district that has become a model across the country. Ten telecourses have been produced since 1972, and if you use educational television on any of your campuses, you probably are using a Coast-made product. The production capability of Coast TV rivals that of CBS and other national major networks.

The restless spirit of creativity stirred again about four years ago, and Norm joined his colleagues in the League in Project ACCESS - a project with the late Peter Goldmark. Goldmark was the inventor of the long-playing record and the color television communication they used in the first Lunar landing. Project ACCESS is designed to revolutionize the storage and delivery of education programs by TV, and Bill McIntosh reported on that yesterday morning. Norm currently serves as the President of ACCESS.

Several years ago when cynicism and pessimism were rampant in the community college, and the language echoed the frustration of the day in terms of accountability, retrenchment, and declining resources, Norm Watson took another risk. Coastline Community College opened with 20,000 students, no buildings and

no fulltime teaching faculty - probably the boldest experiment in higher education since the invention of the community college itself. And Bernie Luskin, President of Coastline, reported on that college yesterday morning.

The word "innovation" is a slippery word - a word that was worn thin with overuse and misuse in the 1960's. Innovation became a smokescreen for educators with more adrenalin than intelligence. It was often the vehicle for personal and institutional self-aggrandizement. "We are being innovative" came to mean in too many colleges, "We don't know what we're doing, but we're going about it merrily." Norm Watson brings respectability to the word "innovation." In his hands innovation has become tough-minded, substantive, creative and bold. Norm Watson has just about done it all. He was innovative in the fifties and in the sixties and in the seventies, and he will continue in the eighties to provide significant leadership at the cutting edge. I invite you to join me in welcoming the past president of the League for Innovation and the current Vice-Chairman of AACJC and the man who has made this exceptional conference possible: Norm Watson.

Dr. Norman Watson:

Thank you very much, Terry. I'm glad you added that last, because for a while when you said I've done it all, with all the retirements up and down the state this year, I thought I was getting a subtle little hint. The fellow survivors of the Mongolian Barbecue, I am glad to see you all alive and well, at least alive, after that experience last night. I enjoyed it very much and I hope you did as well. This is going to be partially a multi-media program. I must admit that it would be impossible for me these days to appear at any conference without some kind of multi-media assistance. My credentials would be severely under attack unless I had something like this available to show that I do use these kinds of things. Incidentally, I want you to know as well that for every piece of equipment over

there we have at least two or three technicians standing by. I'm not sure that that's going to solve the problem, but it better help.

The focus of this conference is on learning - the learning process. The community college is the teaching/learning postsecondary institution. The chief reason those of us here are working in the community college is because we have a primary commitment to the learning process, as opposed to, say, research, publishing and other academic reward systems. The community college itself developed as a creative response to conditions which existed in the United States in the early years of the twentieth century. It is an institution which is free of tradition - a place where it is still possible to tinker with new ideas and put them to work.

What is the importance of creativity to our institutions today? Why should we try new things? Indeed, is it in fact true, as Clark Kerr observed, that a person could walk into many classrooms today and see nothing that differed one iota from what was happening in the University of Bologna in the twelfth century? And really, what does it matter that there are no differences? The research team of Dubin and Taveggia came out with a volume called The Teaching/Learning Paradox a number of years ago (1968). They drew many comparisons between various teaching methods, and there have been other summaries that tended to show the same thing, comparing lecture, discussion, radio-television, and so on as teaching methods. What they came out with, basically, was parity: no significant difference. Their research can be summarized by saying that we should expect any teaching method to be about as good as any other teaching method when its criterion is student achievement of knowledge or understanding, and the content coverage of the methods is similar. The important fact to emphasize in that statement is the criterion that is used: student achievement of knowledge or understanding. What it really says is that about any methodology is as bad as any

other methodology when you are measuring groups, as Dr. Patricia Cross said yesterday, during a closed time period.

But what if you set up different goals? Suppose you are attempting to develop problem-solving ability, or an attitude change, or specific skills, or generalization and transfer, then the question becomes, "which method is better for what? What learning outcomes are to be expected?"

Each teaching method has its particular advantages and is peculiarly able to develop certain learning outcomes. Ed Glaser says that the community college today is in its fourth generation. He describes the fourth-generation community college as follows:

Community facilities and resources will be used in the institution service. The student will be a cross-section of the community served. The enrollments will be widely diversified in age, motivations, educational objectives, socio-economic and ethnic characteristics, and educational achievement levels. The college will be perceived as part and parcel of the community, rather than providing services for the community. The college will be aggressive in searching out community educational needs. It may make available information about the community to other community agencies. The college programs will be performance-based. The concept of the college as providing centers of educational resources for the community implies continuing utilization.

Target populations will include a large portion of personnel not previously found in postsecondary education. These will include persons who have not been able to continue fulltime education, adults unemployed or in jobs that are obsolete, the hard-core unemployed, women in the community including young mothers with children at home, and senior citizens. The effects of serving these populations will include a rising age level, higher proportion of students from lower socio-economic levels, and larger numbers of part-time students.

The lifelong education services may be occupational in nature. They may be cultural or recreational. They may be aimed at providing basic consumer and citizenship competency. They may take place in the home, job place, on campus or in many different community locations. They may involve the use of mass media: television, radio, the newspapers. They may take a variety of forms, such as community forums, classroom instruction, library and media programs, or counseling services.

The revolutionary developments in technology today are giving us greater and greater opportunities to try new things, to make new breakthroughs. Technology and a continuous ability to generate new ideas as needed in education today, are needed as never before. Basically, ideas drive movements. Today more people are spending more of their time on collecting, analyzing and processing information than ever before in history. The day is rapidly approaching when each individual will have 1000 television channels available to him and will be able to plug in whatever he wants. The satellite and fiber optics make this technically feasible today.

We are in the midst of a communications revolution, you and I. Our clients, the society we serve, will desperately need our assistance in coping with the parameters it will present. How, then, do we foster creativity? How do we encourage administrators and faculty to deal with the new conditions and new forces we are now experiencing? First, I think it is essential to develop the climate, the atmosphere, the environment where creativity can take place. Once this happens and ideas start coming and are carefully nurtured, a kind of contagion will develop. A lively ferment will take place, and ideas will begin to bounce off one another, and we will experience a geometric progression.

But first, the climate must be right. I believe that one of the essentials of building that climate is to be open enough so that faculty members will be willing to take risks in what they are trying. There needs to be developed a right to fail. Not all ideas will succeed. In fact, unless some are unsuccessful we are probably not encouraging enough risk taking. I'd like to talk briefly about 10 things we have tried in the Coast Community College District. Ten possibilities, I think, for creating and fostering creativity.

First, idea exchange. This is one of the things, as you know, that the League for Innovation has made a fundamental project. I think that there are ideas, there are programs, there are activities going on in the League colleges that would surprise and astound faculty members and administrators at other institutions. We need to know what those are. We need to share our information, and some of the things that have been happening at this conference give me encouragement along those lines.

A second avenue for fostering creativity, I believe, is in field visits. A new project was just put in place in California this year, and I'm sure the project has parallels in other community colleges in other states. This is a project whereby individuals in certain disciplines, in certain occupational fields, and in certain scholarly disciplines will visit other institutions where strong and unusual programs are in place. Gene Tardy, sitting in the audience here, had an opportunity to take part in one of these short exchanges. I believe that site visitation in the field has a tremendous potential for generating ideas and for stimulating change.

A third avenue, a rather prosaic but a very important one I think, is participation in conferences. In our particular district we probably send more people to more conferences in more different places than, I believe, most other institutions do. We believe there is a tremendous payoff in this. We believe that the opportunity to share experiences, to talk with people between sessions as well

as to participate in the sessions themselves gives an opportunity for growth and for the generation of new ideas.

A fourth avenue, I believe, is in the holding of workshops. These don't have to be long affairs; they don't have to be sophisticated affairs. They can be drive-in workshops. They can be single-subject focused. They can deal with issues and concerns of groups of institutions. They can be regional in nature. They need not be expensive. But they can have a tremendous payoff in terms of new ideas, new plans, new developments.

A fifth activity that I think is extremely important lies in the area of joint projects. One of the surprises we had in terms of our ability to work with the other institutions who were involved in the ACCESS project is the generation of enthusiasm and the development of skills on the part of participants in the ACCESS project. ACCESS - let me tell you a little bit more about the constitution of membership - consists of Central Piedmont Community College in North Carolina, the Metropolitan Community Colleges of Kansas City, Chicago City Colleges, Lane in Eugene, and the Coast Community College District. We selected a group of courses to build. Each one of these institutions took the leadership in assigning a chairman for a particular course. The other institutions then contributed faculty members to assist the chairman with the development of the modules. These people now have developed skills in putting together modules that would have been absolutely impossible without this kind of joint activity and group effort. They learned from one another. They started out at extreme points of view. They've now reached understanding and are developing consensus.

A sixth important activity that can foster creativity, I believe, is to identify the change agents in your district and in your institutions and back them to the hilt. If you look in no matter what district you can think of, you can find some individual or some individuals who will have an interest in trying new things, in attempting

new programs, in experiment. The important thing to do is to support this spark of creativity, to fuel it, and to bring it into existence so that a viable product will emerge. There is nothing that will develop the enthusiasm and the intensity of faculty interest like the success that can be achieved by **some of these** change agents. And they can achieve success if you make it your objective to see that they do achieve that.

A seventh important area in which creativity can be fostered is very fundamental, and that is in budgetary support. Without a budget for creativity, you're not going to have creativity. This is where the administrator puts his credibility on the line. If he says he wants creativity, if he says he wants change and he wants experimentation, but he's not willing to include that in the budget, he is not going to have results of creativity. It is important to put this in; it is important to protect it in times when budgetary restrictions come down the pike. If this is the first thing to go, that says something about the philosophy and the conviction and the commitment of the administrator.

An eighth important area I believe is in the provision of special facilities. I encourage you sometimes to take a look at what we have attempted to provide at Golden West College and at Orange Coast College in terms of facilities. The fourth floor in the library at Orange Coast College is a veritable jungle/garden, whatever you may want to call it, tended by some very imaginative and creative individuals who are attempting to serve faculty needs. The equipment has been purchased in order to allow things to happen. Say just a word about technology: a lot of people think that when we use the word "technology" we're talking about hardware; you're talking about machines that glisten in the moonlight like a dead mackerel. We're not talking about hardware; we're not talking about machines. We're talking about an attitude, a point of view. We're talking about a new approach. We're talking about imagination, and if media can be used to enhance

that system, then of course it should be used. Special facilities: once again at Golden West College - a very sophisticated learning center, very sophisticated in both of the institutions. We have television studios which are not a part of Channel 50; they are a part of the commitment to the college effort to do outstanding and sophisticated audio and visual work.

Number nine, personnel support. These things just don't happen by themselves. You need technicians. You need learning designers. You need clerical support. You need the kinds of people that can help the faculty member, and extremely important, the academic individual with the subject matter competence to make the bridge between the subject matter and the ability to translate that into a finished product.

And tenth, most important of all is faculty involvement. Some way, somehow, get faculty involved in these projects. And that leads me to a couple of brief examples of how we have attempted to involve faculty. We started a Faculty Fellowship program in the year 1969-70. Through '74-'75, during that period of time, we had awarded 188 Faculty Fellowships, representing \$316,287 of hard money. The average grant was \$2,680. Some of the things that were produced as a result of these Faculty Fellowships were audio-visual aids for classes, computer-assisted instruction, audio-tutorial for multi-media systems, audio-tape development, videotape and film production, and syllabi and script production. In '74 and '75 we re-evaluated the Faculty Fellowship program. We decided it had been remarkably successful, but we desired to make some changes. We made three changes basically. One, we set up a Dean's Discretionary Fund as a part of the Faculty Fellowships which allows the deans at the colleges now to have funds to utilize when they see needs at the grassroots level that need to be encouraged. A second change we made is the requirement of an evaluation report written at least

within one year of the completion of the project to attempt to find out what the results of the project happen to be and how successful the project was. A third change we made was to separate Faculty Fellowships into experimental and impact grants. Experimental grants are those that are a little more far out, a little more daring, a little more risk-taking in nature. The impact grants are grants that would allow an instructor who had already gone that first step to attempt to complete something or bring closure with a little more money.

Each year at the beginning of the year we announce program priorities. What is it that will be given priority as far as the district is concerned in relation to Faculty Fellowships? Since 1975 we have awarded 55 Faculty Fellowships for an additional \$191,131. The average there is \$3,475. During this latter period there have been nine team efforts, more faculty members working together to produce a particular program. Also, at the present time, the faculty members are being encouraged to work with college institutional researchers on the development and implementation of the research design. Faculty Fellowships basically do this for a faculty member: they allow the faculty member to have the opportunity, when an idea hits him, to have something happen to that idea. Rather than going to the administrator in charge and saying, "Look, I have a great idea. I want to do something. I want to achieve some results, and the administrator saying, "Sorry, nothing in the budget. Why don't you put it in next year's budget?" - so, the faculty member then languishes, frets, is frustrated for eight to nine months. Maybe it gets into the budget; maybe it doesn't, but by that time the idea has lost its luster. So Faculty Fellowships is one method we have found of encouraging some of these new ideas.

I'm going to turn to multi-media here for a little assistance. I'm going to give you a chance to take a look at some of the things that have been

accomplished. First at Orange Coast College. I want to say a few additional words; then we'll show you some things that have been accomplished at Golden West College. Now, one of the things that I would encourage you to watch here as you view the advance screen is for rationale behind the instructor's choice for this particular medium. Why was it that he was impelled to utilize the media? Not just because it was a machine, but because he wanted to achieve some objective that could be achieved better using the media than by some other means.

Another thing that I must emphasize, and I hope I can underline this for you: what you are going to see is only a part of the total package. These are systems of instruction. You are going to see only the audio-visual elements involved in this. You are not going to see the print materials. You're not going to see the facilitative effort, the human interaction that is an integral part of this. You're not going to see the behavioral objectives that have been developed in advance of this. You're not going to see the whole picture; so what you'll have to do is use your imagination as you watch these things and see this as simply one element - one small part, but one very important part of what faculty members are attempting to achieve when they are being creative in the Coast Community College District. And now we're going to have "lights, camera, action;" we'll get into Orange Coast College.

(film)

Another project or area of importance which we have supported is a series of summer activities participated in by faculty members. At Golden West College this started back in 1968 and was called SAL - Systems Approach to Learning. It started with an extension course. It has been continued now, and over 100 faculty members have completed 183 so-called SAL projects in 40 different subject areas in ten summer sessions that the SAL project has been in operation. These ordinarily run about six weeks in length. To give you some idea of some of the

kinds of things that instructors engage in during the SAL period of time a series of slide tape lessons on writing coherent sentences was prepared, and these would identify specific skills which need to be accomplished, and slide-tape lessons would be identified. As an example: applying sentence structure principles of subordination by using relative pronouns. Another SAL project was "Design Tools and Their Uses," a tape slide package teaching the subject to identify tools in the graphic design area and to use graphic design tools for preparing visual art work. Another one was in the area of architectural perspective drawing - the fundamentals of one- and two-point perspective drawing. Here three sound-slide packages were provided.

Now I'm going to ask the operators to put on a little segment of some of the things produced at Golden West College so that you can see more of the variety of the kinds of things that we are developing.

(film)

I'd like to express appreciation to Lee LaJeunesse, Jeff Dimsdale, Hayden Williams and the others who put together these samples. I hope this gives you a little insight into some of the things, some of the ways, some of the avenues for fostering creativity. I think that I would leave you with one message: I think we can improve. I think we can improve; I think we can do better. I am given some hope there because last night in my fortune cookie there was this little message, and I apply this message to all of us here: "Don't give up hope!"

Terry O'Banion

Different people get different things out of conferences, and Norm, I know that this audience got a great deal out of that presentation. I, for one, will never be intimidated by an avocado pit again. We have time for a couple of questions maybe before we dismiss:

Q: I was going to ask where I can get one of those salads, but I was wondering how you coordinate the TV instruction with work on the campus. Do you have individual conferences between students and the teachers, or do they just come in for exams, or how is that handled?

Dr. Watson:

I really didn't get into television instruction. Television at the present time is handled by Coastline Community College. The policy there is for a number of facilitators to be appointed to work with each course we televise. These facilitators then are the people with whom the student interacts and responds on a regular basis. The instructor has at least five hours of time available to either telephone students or meet with students or have office hours for students, so that each one of these courses that we televise does have faculty interaction built into the course. Many times that is the individual who helped design the course; sometimes it is other subject-matter specialists in the area. Any other questions?

Q: (not audible)

Dr. Watson: A lot of times faculty members develop things like this without the incentives you have. You have guidelines about what constitutes a faculty member's normal activity, and when does he cross that line and become eligible for the special funding that we have? Ordinarily, the projects we have been talking about require either released time on the part of the faculty or a combination of released time, special support area, special materials, special supplies. I can give you a little example of the kinds of things we ask faculty members to put together in terms of a proposal. They will say, for instance, that they need "x" number of video tapes, audio tapes, cassettes, slides, etc. They will need a lab assistant's work or technical support of a photographer, computer programmer, clerical person, what kind of equipment is needed, what kinds of miscellaneous items.

Ordinarily, what occurs is a commitment on the part of an instructor toward a project on a kind of a long-term basis, so that he is in a developmental stage. It's something new, something different, and I guess it is the newness or differentness or experimental nature of it that allows it to qualify pretty much as a Faculty Fellowship.

Q: Who makes the decision as to which faculty receive Faculty Fellowships, and what are the criteria. How is that process carried out?

Dr. Watson: That's a good question. As I said, we try to establish district priorities each year. We say, for instance, that we will give first priority to projects that will result and stand alone for independent study mode; or we will give first priority to projects that attempt to achieve certain specified objectives. The determination of what Faculty Fellowships will be approved is made at the campus level. The campus committees developed a list of priorities and prioritize the projects in order. Those then are sent to a district committee in the Educational Planning and Development area for review, and the funds are allocated on the basis of the amount of funds available.

From Junior College to Community College and the
Significance of the Change

John Dunn, Chancellor, Foothill-DeAnza Community College District

The topic of this discussion this morning was agreed to by telephone, and I think it is a significant one if you do not interpret the topic too narrowly. But in addressing myself to the question after receiving the kind invitation of this committee to speak on the topic, I was reminded somewhat of an experience that I had at the University of Oregon as an undergraduate student. I and a friend of mine were in our senior years with one quarter to go in the Spring to qualify for a Baccalaureate Degree. In order to qualify we had to carry 19 units, many of which were solids which would call for considerable expenditure of effort on our part. However, we still had one elective remaining and so we scouted the files and our resources to find the single course on campus which took the least effort to produce results. We came up with a course over in the School of Religion on The New Testament. The grapevine had it that this course was somewhat easier than others because the instructor invariably for the last ten years had asked the same final examination question - namely, trace the travels of the Apostle Paul. So we took the course, concentrated on our other 16 units, occasionally went to class (but not too often) and the night before the final examination there wasn't anything we didn't know about the Apostle Paul's travels and achievements. You can imagine our dismay when the Professor wrote the final exam question on the board - one question about which we were expected to fill a blue book. The question was: "Present a critical analysis of The Sermon on the Mount." Well, I wrote what I could remember from Sunday School and a few other sources along the way, but I got the grade I deserved on that final examination. I noticed, however, that my friend was writing furiously. I later discovered that he had received an "A" in the

course. I asked him, "how come" because I knew he was no better informed on The Sermon on the Mount than I. He said, "Read my blue book." The first paragraph of his blue book went as follows: "Let those who wish criticize the words of our Master. As for me, I prefer to discuss the travels of the Apostle Paul." So, if I wander today from the topic as you might perceive it to be, you may be sure that I am recalling the travels of the Apostle Paul as an alternate solution to the question before us.

A basic truism to which I think most of us would subscribe is that the community college of today is a product of the social forces which have shaped its development over the years. We have responded so well that sometimes academia has wondered about our ability to "be all things to all people."

At times like this I reluctantly recall one of Robert Hutchins' many pronouncements. I am sure it has been of little concern to Hutchins how frequently I have disagreed with him over the years, but even when he is wrong, he states it so articulately, such as when evaluating the community college system he states, "It is confused, confusing, and contradictory. It has something for everybody. It is generous, ignoble, bold, timid, naive, and optimistic. It is filled with the spirit of universal brotherhood and the sense of American superiority. It has great faith in money. It has great faith in courses. It is anti-humanistic and anti-intellectual. It is confident that vices can be turned into virtues by making them larger. Its heart is in the right place; its head does not work very well."

The difficulty one has with a statement such as that is that at a specific point in time it has been true. And we still make many educational decisions in terms of developing ADA. "A course must be cost effective" is a statement that we are hearing more and more frequently. "Productivity" is another term that Hutchins could use to document his opinion.

I would like to discuss with you today some of those forces which have directed our growth, and which we subsequently have recognized in mission statements which we write about our purposes and reasons for being.

Back at the beginning of this century, Stanford University and the University of Chicago separately arrived at a similar conclusion: namely, "what a great center for research and specialized study we could become if we could get rid of freshmen and sophomores." Awed by the German University as a place for specialized study Henry Tappan, William Rainey Harper, and David Starr Jordan looked at the German Gymnasium as a parallel to an American counterpart where those functions not truly a part of "higher learning" could be discarded.

And so the junior college was born - first in Illinois at Joliet under the auspices of the University of Chicago. What forces then determined our curriculum and programs? The University did. Lower division requirements for entrance into "specialized study" were keys to junior college offerings. Survey courses, general education provided the foundations. This influence still exists to a major degree, but with a multitude of differing lower division requirements involved.

But from this point, community college leaders took over. The needs of industry and the concept of occupational education (for some strange reason called "terminal" education) became a part of our mission statements.

And so we have progressed - responding to needs of the community and social needs of the times and environments we serve - to wit:

1. The launching of "Sputnik" turned our attention to the sciences, and the humanities have been struggling back ever since. We found that the Russians were outstripping us. A current story which emerged when our first satellite went into orbit is more illustrative of the truth, however. After passing in orbit several times with the Soviet

missile saying good morning in Russian each time, and the American counterpart responding in English, the Russian orbiting vehicle reluctantly said, "why don't we be honest and speak German?"

2. Our increasing awareness of the decline of our cities has resulted in urban studies programs in 27% of all four-year institutions and 12% of all community colleges.
3. The Civil Rights movement was a responsible force resulting in Ethnic Studies Programs - 26% of four-year colleges and 23% of two-year colleges have programs in this area.
4. Deterioration of our natural environment has resulted in Environmental Studies Programs in 28% of four-year colleges and 18% in two-year colleges.
5. Women's Studies Programs came from community awareness of the need to meet changing roles of women. Only 6% of us are doing anything in Women's Studies, however.

These are some of the more obvious movements and social forces which have caused us to become "community" colleges in the full sense of the word. We could spend another hour on identifiable sources and influences - the Legislature, the burgeoning State bureaucracy, and the courts, to name a few others.

It is my conviction that the educational needs of the taxpayers (residents) of the community served by a community college should directly determine the nature of the programs offered. This would embrace the entire population 18 years of age to 80 and would require no prerequisites to be a student at some level, in some entry occupational level to enroll. In essence, we ask ourselves to take everyone over 18 years of age where he is and take him as far as he can go. We assist him to select the alternatives which will determine the direction he wants to go. If he needs basic skills, that is where we start.

Can we do this? I think we can, and I think we are in many areas. But we can't do so unless we can convince our political leaders that such efforts are worth financial support. They are not at present so convinced. Example: San Francisco City College recently developed an outstanding program for first-time mothers. Young mothers, and mothers soon-to-be enrolled by the hundreds. Additional sections were activated immediately. The courses were offered on a team-teaching concept. Child psychologists, nutrition experts were a part of the teams involved. Obviously this response to the needs of a segment of the community was a successful and satisfying one. Members of the State Department of Finance, the governor himself, and others have referred to this program as "potty training."

One of the yearbooks of the American Association of School Administrators many years ago featured seven cardinal principles forming a basis for educational goals in the education and development of the whole person.

One of these principles was "the worthy use of leisure time." With shorter work weeks becoming shorter still in the future, can we successfully defend teaching healthful recreational skills? Macrame, ceramics, archery, skiing, golf, tennis? What about our aging citizens - should we make their leisure time, of which they have an abundance, more meaningful? Our state leaders say yes, but not at state expense.

Reactions to curriculum development designed to broaden our services to our communities - services not based on matriculation requirements, not restricted by age, sex, or race, are not positive in finance agency eyes. There is almost an agenda in many states to return the community college as we know it to its former junior college status, the curriculum for which is dictated by the university system with an occasional bit of guidance from industry and organized labor.

I cannot look ahead with a great deal of optimism. I am sometimes depressed by "Doomsday, 2000" speakers whose main theme can sometimes be reduced to the good news, bad news cliché. The good news is that by the year 2000 we will all be drinking raw sewage. The bad news is that there won't be enough to go around.

But what lies ahead for us? We cannot hold out much longer against a new financial concept in California, almost universal elsewhere, of tuition. Prediction: Permissive legislation within two to five years, with an attempt to decrease state support proportionately.

Prediction No. 2: A California (and elsewhere) state system of community colleges with local boards serving primarily in an advisory capacity. This is a CPEC goal in this state with growing support in the Legislature. Recent hearings have been held on statewide salary schedules for community colleges. SB 160, our collective bargaining law, pushes us in this direction.

It will be difficult to maintain a college designed to serve its local community needs in a climate that spawns such trends at the state level. But that is our task. We must define our mission and we must continue telling others, or the greatest humanitarian institution in the history of education will not continue in its present form. And it will take all of us to save the word "community" in our titles and to continue to make that title mean something more than geographical identification.

"From Learning Theory to Instructional Theory" *

Dr. Robert Heinich, Professor of Education,
University of Indiana

Introduction: Dr. Paul Elsner

I want to welcome you to the second general session. Our speaker comes to us with a distinguished background in writing, research and practical on-line administrative experience. His aim and focus, consistent with the theme of this conference, has been sharply developed over several years' contributions to learning theory and implementation of his distinguished work.

Bob Heinich took his B.A. and his M.A. at the University of Northern Colorado at Greeley and his Ph.D. at USC. He currently holds the position of Professor of Education and the Director in the Division of Instructional Systems and Technology at Indiana University. He has been Director of Educational Systems in the division of Doubleday and Company and has guided the product development at Doubleday in instructional development efforts. He has also directed media specialist workshops at institutes at USC in the past summers and has held administrative positions in which he has supervised all telecommunications and an educational radio network in a very large public school system in Colorado. He has been the recipient of several awards and honors including a Presidential citation for his work in connection with the National Society for Performance and Instruction and also has been president of the Association of Educational Communications and Technology.

He has written numerous books and articles on management strategies for educational change, applications of technology to education and instruction and

*see appendix for illustrations

open learning systems. He is also currently research editor for AV Communication Review. His numerous professional affiliations include being president for the Educational Communications and Technology Foundation, and our second-session speaker, I think, today will keep us in focus and stay on target. It is a pleasure for me to introduce Bob to you at this time.

Robert Heinich:

Thank you very much, Dr. Elsner. I read the Los Angeles Times this morning with a little apprehension, wondering what the outcome of the coal strike is, because some of you may know that the situation in Indiana is pretty grim. Indiana University is closed; Purdue University is closed; there are now about 60 school systems in Indiana that are closed. We are closed - Indiana University is closed until officially March 25, and on March 22 an 800 number will be installed in the university so that any students wanting to know whether or not the school will continue can call in and find out. We may be joining the ranks of the unemployed and the lines for unemployment insurance by the time April and May get here.

Also, I had a personal disaster in coming here. When I got on the plane at Indianapolis I suddenly discovered that I left my reading glasses in the boarding area, and so when I arrived in Los Angeles, the first thing I did was call the Akron. Now the Akron is a funny institution in Southern California, but about once every three or four months they get in a shipment of their super-duper special \$1.98 reading glasses from Taiwan. They didn't happen to have any so I had to go first class and picked up this pair at Newberry's for eight-and-a-half dollars. As a matter of fact it's a little bit better than the pair I left at Indianapolis, which I picked up at a swapmeet in Ontario, California, last year. I was at the swapmeet with a friend of mine who is director of research at Riverside, and a guy had

several pair of eyeglasses there on the table, and I tried them out and I found one that seemed to work beautifully, so I said, "I'll give you 50¢ for them" and he said, "Sold." I broke my own and I've been using those ever since. When I finally got back to Bloomington - I was out here on sabbatical last year - my opthamologist said, "Where did you get that pair of glasses?" and I said, "I don't want to tell you."

He said, "You got them at a five-and-dime."

I said, "No, no, it's worse than that; I got them at a swapmeet in Ontario."

So he tried them out and he grudgingly admitted that I'd gotten a good bargain. They were perfect. So it's just a lesson to you on the fetish we have about going through the prescribed opthamological route for some of these things.

To launch into the topic that I have this afternoon, there was an article in the Bloomington newspaper a while back that I thought was fascinating. It starts out as one of those good news/bad news things. It says, "First the good news. In the past five years Poland has become one of the world's largest manufacturers of golf carts. The bad news: there are no golf courses in Poland." Now you know this could give rise to all kinds of jokes, like, well maybe it's to help senior citizens in Poland to play soccer, you know, the national game.

But I thought that really isn't as funny as it sounds, or maybe it hits a little close to home, because when you think about it, where does most of our learning theory come from? Higher education. Yes, you know that. And where is it practiced the least? In higher education.

I'm going to take you on a little trip with me this afternoon that I'm trying out, and it's going to be a new approach, a different approach to the way in which we start looking at learning theory and instructional theory. It's going to require a little bit of faith on your part in terms of whether or not you really believe in what I'm saying.

I was reminded of a story that was told by - happened to be the priest in Bloomington - about a minister who was telling a group of parishioners one day that he put a wire across a canyon - not very wide, but very deep canyon - and said, "I'm going to push a wheelbarrow over that wire and walk over the wire to the other side of the canyon," and they said, "You're crazy; you can't do it."

And he said, "Yes, I can. I've got faith," and proceeded to go over with the wheelbarrow. He turned around and he came back over the wire, and he said to this one particular parishioner, "Now do you believe me?"

"Yes, I have faith - I know you can do it."

And the minister said, "You really think I can do it?"

And he said, "Yes, I believe you can do it."

"Fine, I'm going back. Get in the wheelbarrow."

It's at the point where you get in the wheelbarrow that really makes the difference.

What I want to do this afternoon is to take a look at the relationship between learning theory and instructional theory within the context of looking at the relationship between, say, science and technology; and using learning theory as an example of science, and instruction as an example of technology. Now what I mean by that is that a technology being an applied field - in other words, the application of scientific and other organized knowledge to a practical task. And this essentially can describe instruction. And learning theory being more like a science in the sense that we should use science, as being a codified system of explanation of why phenomena occur as they do.

Then I want to relate that to something that happens along the way - to practice. And that is organizational structure, and what happens within certain

organizational structures when they attempt to implement the results of the products of learning theory and instructional theory. It's a global picture that has helped me analyze some of the problems that crop up, and I hope it will be helpful to you. We can't ignore the organizational structure of the institutions that we deal with because very frequently their structures depend on who the client is for the particular learning theory/instruction theory, whatever it is that happens to be developed. Whether it is intended for faculty, administrators, legislature or what-have-you depends on how it hits in the organizational structure.

Now my position may seem a little strange to some of you as the editor of a research journal, but I have to mention that for the first thirteen years of my professional life I ran a media program at a large school system, and those first 13 years conditioned, to a considerable extent, the way in which I look at things, which the subsequent years have not succeeded in erasing. So when I approach the problem, sometimes in a rather schizophrenic way because I have one set of values and opinions and ideas and so forth from the community of people I normally associate with - researchers and their activities - and yet have still a feel for what happens at an implementation level.

Now I'd like to get a couple of definitions straight - I mentioned about science: science is a codification and explanation allowing phenomena to take place; a theoretical explanation of experimental laws. By "experimental laws" I mean relationships or laboratory-derived functions that hold true regardless of whatever theory attempts to explain them. Now sometimes in the social and behavioral sciences we misunderstand that and mistake theory for experimental law and experimental law for theory. Let me read you an example, and that will help make my point. This is written by a man who has done a lot of administration and writes in the area of administration. So that this point might be clarified by

reference to the physical sciences, if a person jumped out of a window on the 13th story of a building - oh, incidentally, having been an administrator at one time, I don't mind saying this, but there is something about the administrative mind that picks out an example like that - we could predict the exact speed at which his body would hit the sidewalk below. We could also calculate the force of the impact when the body hit, and predict with a high degree of probability that the person would die upon hitting the sidewalk. All this is in the realm of experimental law. You only enter in the theory part of it when you attempt to explain why it did take place the way it did.

We do it by a theory of gravitation. If somebody tomorrow decided to disprove the theory of gravitation and did, it would have no effect on the experimental law. You know those cannonballs dropped by Galileo are going to hit the ground at the same time over and over again - it's not going to change. The same with the relationship with some of the experimental laws that have come out of learning and the relationship to learning theory and what we can use in instruction. For example, reinforcement. Reinforcement is really not a theoretical position, it's an experimental law. If you reinforce the subject the behavior will tend to be repeated.

Skinner is right. That's not a theoretical position. It will pertain independent of whatever theory is used to explain it. Conversely, any learning theory that wishes to gain any kind of credibility is going to have to account for why that experimental law takes place, which is one of the problems with Gestalt theory in the old days. It never managed to do that.

Now the important thing - well, let me give you another example from physics, because I think it is important to see the relationship between, and the place in time when these things take place. Boyle's Law developed in the 1600's

and had a good deal to do with the technology of the steam engine - the business about the relationship of volume to temperature. The theoretical explanation of why Boyle's Law is true did not come along until a couple of centuries later. When physicists start reconstructing their own history they sometimes reverse those two; but it is true that the experimental law came first, and was used by technology long before science was able to explain why they should have used it.

It is a very important point when we start talking about when and why we use certain technological - and I'm using "technology" in a very broad sense - applications in instruction before it has been experimentally proven in research. There was a reference to that in a session that I sat at this morning, and it's very true.

Now, the important thing is the linkage between these; the relation of science to technology. Up until very recently, the relationship between science and technology was very indirect. Edison was not a scientist and knew very little about science. He was a tinkerer, an organizer of a very efficient and effective invention shop. But science was hardly a part of it. James Conan went to the War Department during World War I and offered the services of the American Chemical Society to the War Department or the Navy Department, and the Navy said, "Well, we have a chemist." And they never bothered to take up the American Chemical Society on their offer for chemists. Now the contrast between that and World War II is striking. The technology of World War II could not have been fashioned without the direct cooperation of science. That has occurred only very recently. Now, at the present time they said when science and technology are relatively direct, the results are normally more sophisticated and more complicated than those we are used to handling in the past. Witness again the difference between working on, say calculators at the present time and computers, with Edison's tinkering with the phonograph and the electric light and so on.

In instruction and learning theory relationships, we are back at the Boyle's Law stage. We haven't gotten anywhere near the current status in the other areas' work. Sometimes we do have some direct relationships between learning theory and instructional theory, and instruction itself and practice. And some are direct. For example: programmed instruction was one of the most direct of the applications of learning theory to instruction. And one could argue that Keller's personalized system of instruction has some very definite roots in behavioral science, specifically in behaviorism. And there are some that are indirect. For example: television - audio-tutorial approaches. When Sam Postlewaite first developed audio-tutorial techniques at Purdue University, it had absolutely nothing to do with learning theory. Sam just thought this would be a nice, effective way to organize the class that he was teaching. It was after the event that people then came to him and said, "Sam, you know what you got there, and what you could build into that? -

He then started working backward by putting into the instruction kit already devised, some elegance, as the boys would call it, in the area of learning theory, and the application of learning theory to that. But it was an after-the-event occurrence, the same as with television. Television came along and was used for instruction as a technology before anyone really started thinking about how we could apply some principles of learning theory to television and use it fairly effectively. But, with working backward we can make it even more effective. For example: with "Sesame Street." All of the learning theorists in the world with all of the experimental laws that they have at their command as to how you get organisms to respond to certain stimuli, would not have come up with the creative type program sequences in "Sesame Street." That takes a different kind of a talent. But the learning theorist is useful in being able to tell you, once you have

come up with that kind of sequence, how it could be improved in terms of its instructional effectiveness. Sometimes, in higher education we start teaching instructional development as if all one needed was to have the right kind of bag of tricks and one could solve any instructional problem. There is no substitute for imagination and intelligence, creativity, etc. The bag of tricks is helpful, but that is about it. They are very helpful.

One of the problems of direct application of learning theory to instruction, as in program instruction, is that people aren't laboratory situations. And you have to start making a number of modifications in order to accommodate their own differences in coping with that problem - problems of step size; problems of frequency reinforcement; problems of the loneliness of the program taker, and so on. What happens is that learning theory is really an explanation after the event as to why the event occurs as it did. In instruction you're not concerned with explaining why the pigeon behaved as it did, or any other organism behaved as it did. What you're concerned with is how the organism is going to react in a much more complex environment and do it ahead of time. It's prescriptive, rather than descriptive, and it makes a significant difference in the way in which one goes about the business.

So there are problems with the indirect application which means that once you invent the thing you have to go back and find out how it can be done better. And problems with direct linkage where one has to study the actual situation and differentiate it from laboratory process.

The laboratory-oriented types and experimental types of the kind that I associate with a good deal these days conceive of this process as a direct line -that they will work in their experimental situations and evolve the kinds of very effective theory that will eventually impact directly on instruction; and it doesn't

work that way. Instruction sees the laboratory only as one form of input. The laboratory sees instruction as its legitimate client, but if you look back and think about a technology like engineering, engineering may take a good deal of its working principles from physics and other sciences, but it picks and chooses among them in terms of what it finds useful. And instruction as a technology does the same thing; it picks and chooses from a wide range of theoretical positions that it can choose; from sociology, from psychology, from business organizations and from a number of others that are fair game. The experimental type in learning theory feels that it should be a direct reflection of what he or she does.

There is a very interesting example on this and one of the reasons why I sat in on the session this morning on Cognitive Mapping. Because the same kind of forces operating, reacting to the same kind of forces, the people in experimental research have gotten very much interested in the differential application of instructional treatments in reference to ability. The cognitive mapping people have responded to the same forces from the point of view of trying to organize instruction around students' differing abilities and preferences in terms of learning style and so on. They are almost unconfutable.

The experimental types refer to theirs as "aptitude treatment interactions" or "treatment interactions," and they attempt to establish them in highly controlled experimental situations and so far have come up with very little in the way of positive results as to really what are the effects of differing treatments according to aptitudes of students; and there are very few things so far that have really been positive. High anxiety/low anxiety is one that definitely does result in some differences. Whereas the cognitive style people, to the experimental types, have gone berserk and are identifying a multitude of different kinds of differences and aptitudes between people, and according to the experimental types, they are willy-

nillying, assigning them to differential modes of learning without any kind of solid evidence that it makes any difference at all. It's almost impossible to get the two groups to talk to each other, and yet you would think that they are just on two different ends of a continuum.

The laboratory-type people think, for example, that the main target of their efforts is the teacher. That is not necessarily true. As a matter of fact, one could argue from the way instructional theory is evolving that the results would be so complex that the only way of really guaranteeing that you would have those effects carried out on any replicable and reliable basis is to incorporate them into materials and instructions. Let me illustrate why I think this is true. (SLIDE 1)

I am going to start talking about teaching, instruction, and so on in terms that may seem very strange to you, but I think you can get used to them. We can look at teaching as a craft where, roughly, the one responsible for the craft must incorporate all of these different functions in one way or another with some degree into the teaching situation. Now, obviously, they can't all be handled with any kind of equal facility. The concentration on various parts of this will depend on what it is the individual is teaching and at what level. For example, in higher education at the university level, where I am, the only one that really counts is the top one (slide).

There is passing reference to the rest of them, but the one that really counts is the one up at the top, the Contents Specialist. So the way this whole ball of wax gets implemented depends on how each individual reacts in terms of the emphasis that is placed on these various parts. (SLIDE 2)

If we change this craft to a technological process, and we'll use the current "good" term for this, the instructional development is part of that process. The process itself incorporates within it a specialization of labor function in which all

of these are put in, and where you get out roughly these four types of products. You have some form of Mediated Interface, that is, the sequences that students would go through incorporated in some kind of material form; a personal interface, where students will meet face-to-face with instructors, etc., for whatever purpose necessary; some type of evaluation process that will determine how well the other two are functioning; and a management system that makes it all work. Now, a lot of things go wrong, but let's look at it as a scheme for getting the job done.

My point is that instructional theory is evolving to the point where, in order to guarantee that the sequences will be received by students as intended with a high degree of reliability and replicability, you have to put them in that top box, the Mediated Interface. The personal interface reserved for whatever other learning theories center around group dynamics. We have a mistaken notion in experimental learning theory work. For example, let's take the aptitude-treatment-interaction model, that it will be possible for teachers to manage that process once all the dimensions of it are known. And simply because the people who are teaching are preoccupied with so many other important factors in the environment they can't pay attention to that exclusively. It is much better taken care of in some type of interface.

That brings me to the point of organizational structure, and I'm going to use a scheme by the sociologist Charles Perel, to draw a parallel between how he looks at technological arrangements in industry, business and other bureaucratic organizations in order to make certain parallels to education; and the part that I mentioned before that will be important in terms of what the relationship is between instructional theory, say, and the organizational structure that intervenes. And my proposition on this - and this is entirely speculation - is that it's conceptual in nature; it's a way of helping to understand the dynamics of the process involved - and the proposition is that the organizational relationships condition how learning

and instructional theories are used by whoever is involved out there. And who the client is for an innovation depends on where it fits in the organizational type analysis. (SLIDE 3)

Now he divides organizations into four kinds: starting at the upper left is "Craft," and then what he refers to as "Non-routine Organizations," and "Engineering" and "Routine." Now let me explain the variables involved. You'll notice up at the top it says, "Few Exceptions" and "Many Exceptions." What that means is that the way in which organizational structure perceives the stimuli it receives is as either "few exceptions" or "many exceptions" to what's happening. Then, on the side where you have "Unanalyzable Search" and "Analyzable Search" it means what the response of that organization is. Whether the response of the organization can proceed from a built-up history of experience in the field that is codified, such as in engineering - how an engineer gets trained and how he goes about his business, or whether there isn't any analyzable search for that particular stimuli, as happens very frequently in a craft - that each product is treated as a unique thing, and that the practices are handed down from generation to generation. In other words, one learns as sort of an apprentice. My position is that we tend to train people as if they function in the analyzable search area, as for example in engineering, but they actually function in a craft-type of capacity. (SLIDE 4)

Now, he goes on to identify some of these I mentioned before, and the reason for the ellipse is to show that these things are not mutually exclusive; they are handy categories in which to drop things, and some are moved closer than others. Very frequently in the craft line it moves toward engineering. Now, the important thing for us to look at is how a product can change from craftsmanship to engineering into routine manufacturing. By routine manufacturing, I think that

should be pretty obvious, like continuous processing in chemistry or the manufacture of automobiles. One has identified how one knocks these things out and they get produced. I could make an analogy here in the glass business in Corning, New York, between the operation of the Steuben division of Corning and Corning Glass, where in the Steuben division they are operating on a craft basis - they are making objects really a luxury, and in the manufacturing plant they are knocking out the glasses you use at home. Now to see the relative advantage of each, I could ask you how many of you drink out of Steuben-made glasses - you don't because they would be purely objects of luxury. (SLIDE 5)

Let's take a look at how we might look at the raw materials variables, and if you don't mind looking at people as raw materials, we could look at it this way. We could look at the materials (people) as uniform and stable or non-uniform and unstable, and not well-understood and well-understood. And as you can see, in translating this into schools - and these are Perel's divisions, not mine - I have some modifications I would make on them - is that most of the time our socializing institutions such as schools fit into that upper left-hand category as craft. We intellectually know that most of the students are not uniform and stable, but we treat them that way. We perceive them as uniform and stable, and they are not well understood in terms of the responses that we make. The prevalence of ad hoc instructional decision making fits into that category.

If we move diagonally down into what was the "Engineering" block, we can see that is where he puts "Programmed Learning." In other words, programmed learning is a system where we can program a variety of topics for different purposes with what we consider to be well-understood procedures and evolve learning materials from those. Then he looks at the routine part as custodial institutions of vocational training, saying that in a number of places, for example,

in prisons - if one perceives prisoners in a certain way, as uniform and stable, and that you know what the problems are and how to straighten them out, that you act in that capacity - you run them through routinely. Now, if, for example, you are running a penal system in which you treat each individual separately and you don't say that you know what is wrong and can straighten them out, it would go in sort of that place where the elite psychiatric agency would be. Summerhill is a school that would fit in the upper right-hand corner. Now this is a way of looking at institutions. Many of my friends in higher education love dabbling around in the upper right-hand corner; you know, they love that type of organizational relationship, move in and out, consulting base, etc., etc. They love to operate on that basis, except when it comes to performing the task that the university pays them for, and then somehow they slip down into the lower left-hand corner and often treat their own students as uniform and stable and well-understood - the prevailing mode of instruction - and fitting down into that category. (SLIDE 6)

Now this one gets a little complex, but let me just point out the parts of it that I'm interested in. I'll show you a series of the boxes, individually, just so that I can keep your attention riveted in the place that I want, because we need to look at certain things. This is a way in which he looks at different relationships in the organization. For example, in "Discretion," how much discretion different levels have. Now, incidentally, in his original diagram he uses terminology that is appropriate for industry. I've changed that, as you can see to "Administration" and "Faculty." He talks about the relative power between the groups, coordination between the groups. Now, by "Planning and Feedback" what he means is whether or not the job has to be taken care of by feedback immediately on the spot or whether the function can be planned.

Okay. Now just to, again, draw more of a parallel to what we're doing, I put at the side, "Instructional Development and Proctors" in the "Engineering" block to

make a distinction between the instructional development process and whoever happens to apply the result.

Now, we'll look at the boxes individually, because I think there are some interesting relationships. Let's take a look at the "Craft" box. Operating as a craft, and as I said before it is my position that teaching as we engage in it is primarily done as a craft, the discretion in terms of that in administration is fairly low. The discretion at the operational level is very high. The power at that level in terms of the products going through (the raw material, the students) - the power tends to be low at the top and high in the bottom, and administration by planning and changes in operation by immediate feedback in the local environment, the responses from students, and so forth.

Now let us take a look at the "Engineering" one. In this one - now, remember, this is where you are developing product - when thinking of that, the fact that it is administration that really can set the instructional development process in motion and the level at which it is set in motion - the comprehensiveness of its approach to whatever it is doing, is determined by administration. Don't kid yourself about that; it's not by faculty, it's administration. The discretion there on faculty is relatively low if we are talking about the whole process. Power is fairly high because those aspects of a craft can be incorporated by engineering into some kind of replicable product. And that's what we're talking about in industry in terms of Perel's diagram. Those aspects of the teaching craft, instruction, that can be incorporated by the engineering process into a product generally has those relationships, because if it's built into the product then the discretion of the proctors on the operational level is relatively low. And the instructional development group develops its thing by feedback, constant feedback - the business of formative evaluation, and so on; whereas the function of the proctors is determined by what the plan has provided for the operation.

In routine manufacturing - and I am always tempted to get a little bit sarcastic at this point on this, so I'll try to refrain from doing that - on the "Routine Manufacturing" I've made a distinction in how depending on what the situation is. If we get routine manufacturing, if you don't mind my using that term, by lecturing, then after all, lecturing each year the same is routine manufacturing. Then the discretion of the administration there is low, and the discretion of the faculty is high. If, however, you get routine manufacturing by television, that is, let's say you are entirely dependent on a televised system - entirely, now we're talking about - then it reverses: the power of administration is high and the power of the faculty is low. And the reason why discretion is low in both cases is that the decisions have already been made to make it routine manufacturing. So it's an interesting way of looking at it.

Now, this is a very important point, because - and I'm sure that for those of you in the audience who've been involved in instructional development or any kind of technologically-based instruction, will recognize the problem. You get into all kinds of problems when you try to drop somebody who has been trained in the "Engineering" box into the "Craft" environment. They literally start climbing the walls, because they've been put into a situation where decision making wants to be ad hoc, but their whole training and professional commitment is to a situation that reduces the ad hocness of a decision-making process. And it tends to be extremely frustrating, then, when you get somebody who attempts to move up into that.

It is also equally frustrating when you tend to get people who are in the upper left-hand corner to move down into the "Engineering" part, where they are forever second-guessing what the solutions are, because they are used to that. It's really better, works much more effectively, if you're going to go through this process to, in effect, move from the "Craft" part where the decisions tend to be ad

hoc, down into the "Engineering" section for those things that can be engineered, and then move them into the "Routine Manufacturing" box. Don't dump them back into the "Craft" box, because they'll just be sloughed off. That's why in a teaching situation in a craft type situation the craft function is always to change the technology back into tools - just tools that one uses, rather than using it as a technology - because they are in a craft orientation, and that orientation structures the way in which they look at materials.

Let me give you an interesting example of that in terms of public education - of materials for K-12. Encyclopedia Britannica a long time ago, in the early days of programmed instruction, put out a series of things called "T-MAC." They were programmed instruction, entire courses in algebra and so on. It's a technological development geared for a technological environment, an engineering environment. It was dropped into a craft situation and was rejected. Encyclopedia Britannica then later took apart those programmed instruction texts - the full programmed instruction - and put them out as individual units and said they were remedial. If you have students getting problems, give them this unit, and they will take care of it. That's a craft orientation. So you break apart the technology in order for it to accommodate a craft orientation. Looking at it that way is a way of saying, "Why? What happens on the way to the forum?" What happens from learning theory and instructional theory on the way to practice? Because, depending on what they are, what the products are, depends on whether it falls into the "Craft," "Engineering," "Routine Manufacturing."

You notice I've been studiously avoiding the upper right-hand corner. Well, the reason is that I'm surprised that Perel even has it in there, because that's not amenable to a technological solution. And this is a tip to anyone. If you ever want to defeat a technology, make sure that the situation is kept permanently ad hoc, where you cannot even predict whether or not it's going to happen tomorrow, then

you effectively eliminate the possibility of the technology occurring, because you are diametrically opposed. And I could point to certain trends in public education where it is being done intuitively, that teachers are, many teachers are moving into situations that are intended to keep the situation as ad hoc as possible because it eliminates the possibility of another response, an engineering response, and so on, of a technology arising, or an accountability of what is going on. The accountability is a very difficult thing to do in the upper right-hand box. It even is a difficult thing to do in the left-hand box in teaching - if we look at teaching as a craft - because we never evaluate on the basis of the product. We always evaluate solely on the basis of the input, not the output. In engineering you can evaluate the thing; it's there for inspection.

I want to mention in closing that both science and technology - instructional theory - need an environment to facilitate growth. I'm making this as a pitch - partly, I suppose, more toward research-oriented people, and partly towards you. In science you need freedom of inquiry and information and results subject to verification. In technology you really need the same, but the key in the success of technology is to have a system in which the contributions of technology are both welcomed and encouraged and that frequently is not the case. We too often will make judgments on technology on the basis of one-shot tryouts. We don't like to admit it, but science in the early stages, like the early stages of a new theoretical position in science, gained adherence more by faith than by fact. For example, when Einstein announced his theory of relativity the adherents to the theory intuitively felt that there was something there. It explained things that bothered them that couldn't be explained under the existing situation, the existing theoretical structures; but there was absolutely no experimental evidence at that time to say, "Yes, believe in it." The experimental evidence came later. The same

with technology. If we had had educational researchers around at the time when Gutenberg knocked out the first Bible, they would have gotten a grant from whatever funding agency was running around at the time, and they would have conducted a little study to determine whether or not students could learn as well from this "thing" that was coming off the printing press as they could from those gorgeous illuminated manuscripts. And they would have come out with no statistically significant difference. And their response would have been, "Well, there is obviously no sense wasting time with this damn machine. Get rid of it. Let's stick with the illuminated manuscripts," entirely missing the real essence of the contribution of the book to civilization. We keep doing this. Just a couple of years ago at one of our universities I saw a report of a research project that was comparing whether or not students learn as much from microfiche as they do from the printed page - you know, the hard copy. What the hell do they expect? And they publish the results with a straight face that there was no statistically significant difference - no kidding!

So, technology, too, survives in the long run on the basis of faith as science does, and a willingness to say, "Okay, this thing looks like it will fly; it will work; let's work with it and make it better." That's what Postlewaite did in his audio-tutorial approach, and a number of other people.

So, in conclusion let me say that there's no one-shot decision on that; and that the usefulness of technologies are proven over a period of time; and whether we draw on learning theory or instructional theory for it will eventually come out in whether or not it produces effective results. Thank you.

Dr. Elsner:

Thank you very much Bob. Do you want to try to get away from a routine manufacturing mode and create a craft environment here by answering a couple of

questions the audience may have? Are there any questions?

Q:

You made the analogy of learning theory being sort of at the Boyle's Law level. Do you think that some of the new research in psychology that hasn't yet gotten into real learning theory may be about to transist us into the period which is like World War II or following World War II?

Dr. Heinich:

It may. Incidentally, I'm glad you mentioned that. I actually was using Boyle's Law as an example of instructional theory; but, anyhow, on that I do. But oddly enough, it's not going to come from the traditional - I don't believe it will come from the traditional learning psychologists. It's going to come from the physiological psychologists - the ones who are doing work on the "little black box" that the behaviorists refused to look into a long time ago. There's a lot more things within that box than are dreamt of in a behaviorist's philosophy; and so it's interesting - you know there's an interesting history of that in the history of science - that frequently major developments come not from the field that you expect and under consideration, but from an allied field, an associated field that intersects with it. And I do, yes.

Q: (inaudible)

Dr. Heinich:

Oh, absolutely. I think for example, that the teacher organizations - sure - the teacher organizations in their approach, in the way in which they look at this, reflect the labor movement of about 90 years ago. They are taking a craft union approach, even to the 4-inch paintbrush, and what they really need to do is take a look at - confront the issue directly, and take a look at the way the profession can evolve if it employs the full range of resources that are there without worrying

about craft union restrictions on it. In other words, they want to keep it as a craft. Other unions have come to terms with that - well, most other unions have. You still see problems here and there, particularly in the building trades. But one of the most interesting areas of study is the impact of technology on professions, and it is interesting to see what happens in other professions and what might happen in teaching. And teaching, to me, has a choice right now, that it is very possible that if they don't seize the opportunity, they could go the way of the pharmacist.

The pharmacy profession has been changed by drug manufacturing. All the traditional skill of the pharmacist is now incorporated into the manufacturing process of drug companies. He is no longer a pill-roller; he is a pill dispenser. What's he do? I mean, what does his training consist of? And this is a big hassle in pharmacy schools at the present time, and many pharmacy schools are saying, "Look, let's recognize it for what it is and train pharmacists in how to run a small business; how to get the most out of the things other than drugs that they sell in the drug store, etc., etc." That's what they really need to know; they don't need to know chemistry any more; that's taken care of. The other pharmacy schools, for example, the USC Pharmacy School says, "No, let's look at it this way. Let's escalate the position of pharmacist. Let's say that we should create a position of pharmacist that's really an intermediary between the physician and the patient," especially in a state that gives prescriptions in generic terms; then someone needs to interpret that in terms of proprietary terms for the patient, and as I understand it - I've been told this - I have not been able to check it myself - California is the first state in the union that has been influenced by that and requires a registered pharmacist in the hospital to advise the patient on medication.

It's an interesting change in the profession. You can look at the medical profession and see the changes that have occurred. Now the doctors have responded in a different way. They have responded in the sense of making sure the

physician is always top dog, but pushing the lower-skill, lower-paying tasks on newly-created technologists, and so on, in sub-professional categories.

The same with dentists. It has been at least 15 years since a dentist cleaned my teeth; dentists don't clean teeth anymore; not one that's reasonably organized. And I was told by my dentist recently that one of the priorities of the American Dental Organization is that - they've run up against a plateau in the way in which they can run people through in their current set-up and get as much income as possible from it. (end of tape)

What Would Happen If. . .?

K. Patricia Cross
Distinguished Research Scientist
Educational Testing Service

Almost everyone associated with higher education in any way is aware of the dramatic changes that have taken place over the past decade or so in the nature of the college student population. Today's college students are more representative of a true cross-section of the American public than ever before in history. In the world's most successful democracy, the college undergraduate population is just now beginning to approach representativeness with respect to sex, age, race, social class, and even academic background and achievement. And the increasing "commonness" of colleges is upsetting to some academics. Historically, of course, the common schools were established to educate the common people; colleges were established to educate the predicted leaders of the future who were, in expectation and therefore in fact, young, white, and male, from established and already well-educated families.

Today almost anyone can and does go to college. Ninety-nine percent of the community colleges and forty percent of the four-year institutions in this country are open admissions colleges (Rouesche and Snow, 1977). There is relatively little selectivity left in higher education. Not very long ago, the reputation of a college was based on its selectivity. The best way to graduate a bright class was to admit a bright class. What happened to students between entrance and graduation was assumed to be good, but college reputations did not rise and fall with the teaching effectiveness of the faculty. In reality the ultimate responsibility for the academic reputation of a college was far more likely to depend on the capabilities of the

admissions staff than on the capabilities of the teaching staff. Faculty luminaries were collected by competitive institutions in much the same way. The best way to be assured of a distinguished faculty was to recruit a distinguished faculty. In the 1950s no one was talking about faculty development, which implies a responsibility for the continued growth of faculty members, and no one was talking about accountability for student learning. Those are new concepts in higher education, and they are symbolic of a fundamental shift in the purpose of higher education - from selecting and certifying a limited number of students to educating anyone who walks through the opening doors of college.

While individual colleges may retain distinctive purposes calling for selective admissions, nationally higher education has moved steadily in the direction of open access. In the short time span of two decades, postsecondary education has replaced a comfortable homogeneity of selected students with an uncomfortable diversity of college students who are 20, 30, and even 70 years of age; black, brown, white, yellow and red; females seriously preparing for lifetime careers; faltering students unsure of their academic skills; hopeful students, the first in their families ever to attend college. Having waged a vigorous campaign for equal access throughout the 1960s, society now expects colleges to make access to college something more than a hollow victory. Educators are clearly being challenged to move beyond access for all toward education for each.

But there is a problem. While the purpose of higher education has changed markedly, educational practices - specifically those related to classroom instruction - have changed very little. As Clark Kerr (1976) has aptly observed, "You could go back to the University of Bologna in the 12th Century and feel more or less at home." Even the invention of the printing press did not stop faculty members from their appointed rounds of disseminating information through the pre-print format of academic lectures.

Students, as well as faculty members, have a hard time accepting the fact that precisely because college has become increasingly open to all, the degree per se has lost some of its value. For hundreds of years now, a college education has placed those blessed by it a notch above the common people - not always because of what was learned in college but because relatively small numbers of people had been selected and endorsed by the acknowledged gatekeepers of society. While there are debates today about how much the commercial value of a college degree has slipped, there is no disagreement over the fact that a college degree no longer assures anyone of a position of leadership; indeed even the Ph.D., academe's highest accolade, carries no guarantee of employment.

The paradox is that while the degree means less today than it did twenty years ago, education and personal achievement may well mean more. To state it in the law of supply and demand, degrees have become relatively common, while learning has become relatively scarce. What does that mean for colleges? It means that the college seriously interested in the success of its graduates will try to provide them with the scarce commodity of learning.

I have entitled my remarks today, "What Would Happen If. . .?" because I want to take a look at what would happen if the primary goal of colleges were to maximize learning for each student. To answer that question, we need to look analytically at how today's practices impede or enhance that goal.

Our educational system is based on three fundamental practices. Most instruction is delivered to groups of students for a fixed time period such as a term or a semester, and students are evaluated by comparing their performance with that of their classmates. Those three practices - classes, semesters, and grades - are sacred traditions in education. Our system is built upon them and organized around them, and I suggest that all three are counterproductive to the goal of maximizing student learning.

I suppose any one of these sacred traditions could be singled out and analyzed for its contribution to learning. They are, of course, interdependent. Grading practices reflect better than anything else our philosophy of education. If you doubt the truth of that statement try engaging anyone in a discussion of grading practices without learning a great deal about what that person thinks the purpose of education is. Do grades serve as motivators for student learning? As threats to coerce student responsibility? As protectors of academic standards? As indices of promise to graduate schools and future employers? All of the above? If the common practice of grading on the curve has contributions to make to the education of students, how well does it do the job?

The universal practice of grouping students into classes seems to have a simpler rationale. It reflects largely economic considerations or what many people think of as fiscal realities. Teaching 30 students as a group is cheaper than teaching 30 individuals. Whether it is more cost-effective raises new questions as does the potential of new technologies plus a possible redistribution of faculty time.

The rationale for the practice of fixed time boundaries or the semester is tied to what might be called administrative realities - record keeping, counting credits, computing faculty load, etc.

Ironically, the three educational practices which form the backbone of our system of education must be defended largely on grounds other than those related to student learning. Indeed, I doubt that anyone would undertake to defend grades or semesters or group instruction as practices designed to maximize student learning. It would be hard, for example, to argue that even the most dedicated and skillful teacher could maximize learning for individuals reading at the 6th, 8th and 15th grade levels through treating them as a class of learners who read at the 12th

grade level. Yet that is the reality in community college classrooms across the nation today. Similarly, it would be hard to defend grades as motivating devices for learning when it is the students who least need motivating who receive the greatest rewards of A's and B's, while those who most need encouragement and motivation receive negative rewards of D's and F's. Finally it is hard to defend the notion that blowing the whistle on learning at the end of the semester maximizes learning for either faster-than-average or slower-than-average learners. In other words, if student learning were to become the major purpose of colleges, dramatic - yea truly revolutionary - change would have to occur in the traditional practices of education.

There is no doubt in my mind that those changes will occur. They will occur because education cannot accomplish its new purposes with its old practices; and change will occur because the knowledge and the technology now exist to handle administrative and fiscal realities in a manner that is consistent with student learning.

In the past two decades, we have made significant progress in our understanding of the human factors in learning, and we have made revolutionary breakthroughs in the development and cost of computer technology.

The cover story of the February 28, 1978 issue of Time magazine was entitled, "The Computer Society." Its message is that the invention of the incredibly cheap and versatile microelectronic chip will transform society. To me the most vivid picture of the potential was contained in this paragraph:

The computer might appear to be a dehumanizing factor, but the opposite is in fact true. It is already leading the consumer society away from the mass-produced homogeneity of the assembly line. The chip will make it possible some day to have shoes and clothes made to order - the production commanded and directed by computer - within minutes. The custom-made object, now restricted to the rich, will be within everyone's reach.

If we can individualize the fit of shoes, surely we can individualize the fit of education. I'm not talking here about any very sophisticated use of the computer for interactive instructional purposes. Rather I'm referring to the quite simple use of the computer to remember the learning capabilities and preferences of individuals and to keep records on progress. Individualization via computer is already in use at Miami-Dade Community College. Their computer-managed system known as RSVP can identify patterns of errors in student tests. Then, instead of merely informing students of total test scores or items missed, RSVP generates an individualized letter analyzing concepts misunderstood and prescribing action. It does this with an infallible memory for the student's learning preferences, work schedule, physical handicaps, and anything else that may have a bearing on the student's learning capacity.

Miami-Dade's experience in using RSVP with off-campus students provides convincing evidence that this use of computers is very popular with students and faculty alike (Kelly and Anandam, 1976). So successful in fact that Miami-Dade is now preparing to extend the use of RSVP into their learning laboratories for students working on basic skills. Learning specialists at Miami-Dade are enthusiastic about the possibility of being able to diagnose learning problems quickly, but even more exciting is their realization that RSVP will enable them to use the full range of learning materials. Whereas teachers used to assign one of the two or three resources that they were familiar with and could remember without stopping to check, RSVP will enable them to make maximum use of a variety of learning materials. It is only necessary for a faculty member to analyze the appropriateness of a given prescription once. RSVP will remember, as most of us cannot, to make the assignment whenever conditions warrant.

Finally, the Miami-Dade experience with RSVP indicates that computer-managed individualization is already financially feasible and, of course, the lowering cost of computers is the revolution that is occurring right now. Time (1978) refers to the "supercheap chip" as the "miracle of the microcomputer."

The Miami-Dade experience with the use of computers to manage individualization is pulling the rug out from under the defense of group instruction and semesters on grounds of fiscal and administrative necessity - which is not necessarily to deny that group instruction may have its own contributions to make to some forms of student learning. But the fact is that it is no longer necessary for economic or administrative reasons to organize education into semester-long courses taught to groups of students. We now have the freedom and the obligation to reassess the usefulness of our organization of education for its contribution to student learning.

I want to address the issue of change in educational practices as a human issue rather than a technological one. Clearly, human beings will make the decisions about educational change; computers will do what they are told. If human beings decide that there are better ways to help students learn, then we can, I think, rest assured that technology stands ready to do our bidding.

And now, I would like to return to my original question. What would happen if student learning were to determine educational practices?

The goal of maximum learning for individuals is probably best captured by the concept of mastery learning. For those of you who are bothered by the perfectionistic connotations of the term "mastery," you might wish to think of competence-based learning as a rough equivalent. Both mastery learning and competence-based education assume effective individualization and both use criterion-referenced, as opposed to relative, evaluation of student performance. And those are key concepts in the goal to create optimum learning conditions for individuals.

Mastery learning, accompanied by variable credit, is a simple concept in which the number of credits accumulated is a direct reflection of the amount learned. At present everyone who completes a course satisfactorily receives the same amount of academic credit - despite the fact that some students learned a lot and received A's while others learned little and received D's. In other words, we permit achievement to vary from A through D while holding credit constant, at say three hours per semester course. Mastery learning with variable credit would reverse that. Achievement would become constant, and all would study the subject matter until they learned it. Credit, however, would become variable; some people would accumulate more credit in a year than others.

Mastery learning requires every student to demonstrate mastery of the learning task in order to receive credit. Thus if a student earns three credits, we can assume that he or she knows the material well; what we do not know from the transcript is how long it took him or her to learn it. The tradeoff is whether we would rather have students who know what they know well or whether the time it took them to learn it is somehow more important. If the purpose of education is to help students learn as much as they are capable of learning, then there is no contest between mastery learning concepts and the semester-driven organization of higher education. The practice of stopping learning at the end of an arbitrary time period called a semester or a term makes no sense for either faster-than-average or slower-than-average learners.

Benjamin Bloom (1971), Distinguished Service Professor of Education at the University of Chicago, claims that 95 percent of the population can learn the school curriculum to mastery if given enough time and appropriate help. He cites research to show that instruction presented under conditions of mastery learning enables about four-fifths of the students to reach a level of mastery attained by less than one-fifth under non-mastery conditions (Bloom, 1976).

The advantages of mastery learning are both cognitive and affective. Moving a D student who has failed to master the fundamentals along at an administratively convenient time such as the end of a semester practically guarantees failure in sequential learning. It is highly unlikely, for example, that a student will ever become proficient in algebra if he or she hasn't mastered arithmetic. Ironically, however, the student who earned an A in arithmetic has more time to devote to learning algebra than the D student who must continue to struggle with arithmetic while trying also to learn the new subject of algebra. Research (Coleman, et al, 1966) shows that as children progress through school, poor achievers fall farther and farther behind high achievers - not because they are dumber or even slower than their peers, but because they lack the skills to approach each successive learning task effectively.

Even worse than the cognitive handicaps wrought by traditional education's notion that everyone should move along at administratively convenient times is the affective damage done to young people who are offered no alternative to doing poor work. A school lifetime of doing a job halfway because the student never has the time to master the task must surely take its toll in feelings of frustration and, by the time they get to college, in feelings of indifference and loss of self-confidence. Many of the students entering open-door colleges these days, and many entering selective institutions as well, exhibit little pride in academic accomplishment because, I suspect, they have had little opportunity to experience the satisfaction of doing school work as well as they could do it. That state of affairs is as true for the top third of the class as for the bottom third. Under the prevailing constant-credit, variable-quality methods of traditional education, the bottom third of the class never reach their potential, while the top third stop short of their full capacity for learning. Neither group achieves the satisfaction of maximum accomplishment.

Gearing credit to amount learned rather than the time served is especially important as we move into lifelong learning. Poor or mediocre academic performance, measured in traditional ways, is done and cannot be improved. A "C" transcript cannot be turned into an "A" record. But measures geared to units mastered can be accumulated over a lifetime of learning. A young person may have 200 credits to an active older learner's 400. The difference, however, lies not in the quality of the learning, but in the amount.

There is little doubt that mastery learning with variable credit helps to establish conditions permitting maximum learning for individuals. But it also has some other advantages. It raises rather than compromises academic standards by insisting that students know what they are certified as knowing. It offers positive rather than negative rewards through permitting all students to reach maximum achievement. And it provides a strong motivation through demonstrating to all students that they are capable of good work.

If it is true, as I believe it is, that the problems of administering individualized education to the masses will be solved by the tremendous power of the computer to remember and manage the complexities of thousands of individualized learning programs, why aren't educators preparing for an educational revolution that would help students to learn and teachers to teach?

Ultimately I think we will face up to the idea of revolutionary change in education because we are simply unable to solve some of today's most pressing problems in the framework of an organizational structure that works against learning. But change is complicated, especially conceptual change. Colleges seem to be able to handle procedural change such as changes in electives or modifications in the academic calendar - although anyone who has ever lived through either of those changes on a typical campus knows how time-consuming and

difficult even inconsequential change can be in academe. But shifting the purpose of education from teaching semester courses to producing student learning is a conceptual change of major proportions. Let me illustrate the complexity of such a change through the use of an analogy.

My story is about a furniture company that is organized around the completion of time units rather than furniture units. Things move in this company at the end of a day rather than upon the completion of a chair. They got started on this rather peculiar and non-functional approach through first determining that the average carpenter could finish a chair in a day. Then they proceeded to organize the entire furniture company around the day as the unit of accomplishment. Packers, shippers, billers, and all of the administrative offices of the furniture company use the day as the basic measure. Chairs are sent along at the end of each day regardless of their state of completion. If deviations from this pattern occur, the whole system gets fouled up.

Because people are so used to gearing their work to the completion of the day rather than the completion of the chair, they soon cease to notice the inefficiency of having faster-than-average carpenters sitting around doing nothing after their chairs are finished. Anyway fast carpenters usually learn to string out their work, and since they are paid more than slow carpenters, they don't complain much.

The reason slow carpenters are paid less is obvious. They don't reflect as well on the company because their chairs are inferior, and it is quite understandable that unfinished chairs, like C and D students, sell only after better chairs are gone. Eventually slow carpenters too adjust to the system. They realize they aren't valued as much by the company, and anyway some who have never completed a chair don't really know how to do the final touches. They aren't very proud of

their chairs; they hate going to work, and they dislike their inferior chairs and their low pay, but what can they do? The goal of the company is to average a chair per carpenter per day. And the responsibility of the company to society is to label and sell inferior products for lower prices.

Now one fine day a new president comes to the furniture company. It is her notion that the new goal of the company is to turn out quality chairs. To do this she realizes that the whole organization will have to be redesigned. Completed chairs will henceforth be the goal, and chairs will be sent to inspectors, packers and billers when they are completed rather than at the end of each work day.

Well, when the new plans were announced, there were massive complaints throughout the furniture company. The first to complain were the inspectors and graders and their complaints were numerous. In the first place, because of the individual differences in the rate of work of the carpenters, chairs would be coming along every 15 minutes instead of 30 at the end of each work day, and that would completely wipe out the peaks and valleys of their workload. Furthermore, having 30 chairs all at once permitted them to make comparisons so that they could tell a good chair from a bad one and thus fulfill their responsibility to the customers to clearly label the relative quality of their chairs. And finally there was the problem that inspectors could not be expected to make a new test for each chair as it came along, but if they used the same test continually, the word would be passed along and soon the carpenters would discover the criteria for grading chairs. Eventually everyone would be able to produce quality chairs, and that wouldn't be fair. It is a little hard to understand why it would be unfair to make known the test used by inspectors to grade the chairs, but I think it had something to do with straining public credibility by producing too many good chairs. As everyone knows, most chairs produced by any given company are average.

The next employees to complain were the fast carpenters. Although the new system still permitted them to receive higher pay because they were producing more chairs, it also made them work harder, and they no longer had all those leisure hours toward the end of the day. And finally, the slow carpenters complained because they too had to work harder. Most had become accustomed to sending out unfinished chairs at the end of the day and they no longer aspired to high wages for increasing their production.

And so the fable of the furniture company ends. The public is still unhappy with their unfinished chairs, even though the unfinished chairs are clearly labeled and they don't cost as much. The innovative president of the furniture company became very controversial. Among other things, it all goes to show that affirmative action may be asking for trouble when it brings people into the system who don't understand very well how the system works. Anyway, the president resigned her position, a sadder but wiser executive. Since so much furor had been raised over the bold experiment, the furniture company had to do something innovative to show that they were not opposed to change per se, so the furniture inspectors decided to raise standards by increasing the number of warning labels on their unfinished chairs. To further demonstrate their concern, they decided to lobby for legislation that would prevent chairs deemed not sound enough to sit on from bearing the seal of the company that produced them.

The moral of the story is that it may be easier to found a new furniture company than to change an existing one.

Despite my tongue-in-cheek analogy, I remain optimistic that new alternatives will prove themselves and that practices in education will become more consistent with our new purposes.

Now I would like to turn to my second "what if" question. What would happen if colleges treated adults like adults? College students are becoming older. The average age of community college students today is 28 and rising. During the decade of the 1970's, the number of 25 to 34 year olds in the population will increase five times as fast as the number of 18 to 24 year olds. Added to the shift toward an older society is the shift toward a learning society. The number of adults engaging in learning activities is increasing even faster than their numbers in the population. During the six year period between 1969 and 1975, the number of adults participating in organized learning activities, in or out of the formal school system, increased 31 percent compared to a 13 percent increase of their numbers in the population.

Since colleges were originally designed to serve a primarily adolescent and dependent clientele, it appears that substantial changes are needed if we are to serve the learning needs of adults. What should higher education be thinking about on this eve of the lifelong learning movement?

For starters, we might consider some distinctions between pedagogy (education for children) and androgogy (education for adults) (Knowles, 1969). One important distinction between adult and child learners concerns self-concept. Children perceive themselves as inexperienced people without much responsibility for decisions at home, in school, or in the community. They expect school authorities to make the decisions, and they expect to learn more or less what they are told to learn. Adults, in contrast, see themselves as decision-making members of family and community groups. The school experience that casts students in subservient roles seems incompatible with an image of responsible adulthood.

Many adults are finding college classes an unsettling experience because the school situation carries lingering images of obedience and dependency. The

internal conflict is between old images of how students should behave in school and recent experience with how adults are expected to behave in society. Thus colleges will need to learn how to accept into full partnership adults who wish to share in the decision about what and how they shall learn.

I am a staunch advocate of the learning society, but I confess that I have mixed feelings about the influx of adults into formal learning in colleges and universities. Research indicates that there is an impressive amount of self-directed learning taking place now completely outside of organized learning activities (Tough, 1971; Penland, 1977). Researchers (Tough, 1977) estimate that 90 percent of the adult population design and carry out learning projects each year, locating their own learning resources and deriving considerable joy and satisfaction from learning.

My concern is that in our exuberance for recruiting adults and certifying that their learning projects meet our standards, we will corrupt independent self-directed learners into learners dependent on someone else to determine where, when, and how people should learn. Visions of a learning society with people of all ages enthusiastically pursuing learning that interests them could so easily turn into a joyless learning society with people grimly fulfilling requirements and seeking legitimacy for their learning. It is possible, I think, to ruin lifelong learning by turning it into lifelong education. I can only hope that adult learners are more determined to convert education to their needs than education is to convert adult learners to traditional patterns of school learning.

A second characteristic of adult learners, documented time and again in the research, is their pragmatic approach to learning. Adult learning is motivated primarily by the desire to solve immediate and practical problems. They are interested, not so much in storing know- for use at some future time, as in applying knowledge to life goals that seem important to them.

Research on adult learners who were engaged in their own independent learning projects (Tough, 1968) showed that for almost three-fourths of these learners the primary reason for starting their learning project was the desire to use the learning directly in order to do something, produce something, or decide something - in short, in order to take action. Ranking quite far down the list on adult reasons for learning was academe's traditional reason for teaching - to aid students in understanding. Fewer than one-third of the adult learners indicated that they were strongly motivated to undertake their learning project in order to understand better what they were reading, hearing, or watching.

The third characteristic of adult learners that differentiates them from children is their reservoir of life experiences. New learning for adults has to be incorporated into an existing framework of learning and experience. Adults don't come to school with a blank slate waiting for it to be filled by teachers. They want to know how new knowledge relates to their own thoughts and experiences. This, of course, has both advantages and disadvantages. It means that there are more pegs on which to hang learning that is meaningfully related to past knowledge and experience. At the same time, it may mean that some things have to be unlearned because the new learning is not compatible with the old. Unlearning the child-dependent role of subservient student is a good example of past experiences that interfere with learning a new role of self-directed learner. One educational theorist (Ausubel, 1968) puts it this way, "The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly." Easily said, but not very easily done, especially in the case of adults where surprising gaps in learning may exist alongside amazing sophistication.

The research showing that adults are a more diverse collection of individuals than younger college students (Knox, 1977) is easily comprehended when we

contemplate the variety of experiences of adults as they move through life. Teaching such diversity as though it were a group with common backgrounds and common expectations is both foolish and wasteful.

And so I return to my question, what would happen if higher education were to treat adults like adults? First, we would take official recognition of the motivation of adults to learn in order to use their knowledge and skills. We would acknowledge the fact that most want to become more competent people in order to do something better or to make more informed and better decisions about the things that matter in their lives - their jobs, their families, and their communities. Our practice of stopping learning at the end of a semester in order to grade the learning accomplishments of adults is so irrelevant to their needs that the practice simply does not exist in any form of adult education except that done in traditional schools and colleges.

If competence is the goal, then it is essential to start with the learner rather than with the course. The diversity among adults is so great, both with respect to background and goals, that lockstep education makes no sense. Individualization is every bit as important for adults as for young people - probably more so. Adults need individualization in curriculum as well as individualization with respect to pace and methods. By individualization, -please remember that I mean to make room for people to learn in groups where group interaction is a deliberate strategy designed to promote learning rather than a necessity dictated by administrative or economic consideration.

And now I've come full circle. The answer to my two "what if" questions merge. What would happen if student learning were to become the major purpose of higher education is not very different from what would happen if colleges were to treat adults like adults.

"Advancement Studies: Some Successes in Developmental Education"

Thomas E. Griffin, Advancement Studies Head
Central Piedmont Community College

Developmental education has changed; the students who now enter developmental programs are different. Of 2141 students in developmental studies at Central Piedmont Community College (CPCC) winter quarter 1977, 52% were female, 48% were male. Seven hundred forty-seven were employed full-time. Four hundred twenty-four were employed part-time. Four hundred of these were receiving BEOG grants, and 353 others were sponsored in some other way. The average age was 25.4, and 400 of these were over 30; and 55 were over 53.

Individual learning styles/cognitive style profiles of these students are as divergent as their demographic profiles. By definition, education is a search for meaning, and the search changes according to changes that occur within the individual. Developmental students tend to be more auditory-oriented than non-developmental students. Developmental students' sensory input systems are strong (auditory, olfactory, savory, tactile, visual). Other input systems of Ethics, Histrionics, Kinesics, and Proxemics are not as sensitive as they become after developmental studies. Individuality is not as strongly developed in the development studies student as in others. Developmental studies students tend to make inferences based on a set of rules and relationships.

To recognize the individual characteristics and preferences, CPCC has organized its developmental program to accept students continuously (flow); to allow different means of accomplishing the course objectives (finish); to provide alternate courses or parts of courses as the need arises (telecourse); to systemize data collection that allows us to update our program quarterly (feedback).

Recognizing individual learning styles of students is effecting changes in the instructional design, the scheduling, the treatment of students in developmental studies. Some of the more significant changes are: numbers of students remaining in the program are increasing, numbers completing the course objectives are increasing, students moving into higher level courses do better than before.

"Biofeedback, Self-control and Adult Motivation -
Or What It's Like to be Human"

Dr. Robert B. MacIntyre, Psychologist, Private Practice, Los Angeles
and Associate Professor, Educational Theory,
University of Toronto (on leave)

Dr. MacIntyre discussed various experimental work with biofeedback training and indicated that it does have a place in schools. Biofeedback patterns can be economical ways to learn self-control and initiate a different kind of self learning, inner monitoring.

Biofeedback can also relieve the tension patterns or "life-style" diseases. The exciting part of this training is that it teaches that we need not be the slaves of our passing moods and fancies but that we can be in charge since we can control our involuntary nervous systems. Such knowledge can give students self-awareness and self-confidence. It can be a built-in antidote to test anxiety.

If biofeedback is to be more than a laboratory feat, it must help restructure how we look at the world, help us change our world view, teaching us that we are responsible for our tensions and moods and we can change them. Physiological control techniques are physical skills and once learned are not forgotten.

"The Community College in a Changing Society"

Dr. Bernard J. Luskin, President
Coastline Community College

Imaginative use of technology and innovative teaching methods will enable California's community colleges to meet the demands of lifelong education that will be placed on them by a society that is rapidly changing.

Communications have advanced to a state never known before in history, with satellites rotating the earth in stationary orbit and Americans now owning 400 million radios and 121 million TV sets. Of the average American's 113 waking hours each week, 50 are for leisure. CBS research found that 80 percent of the adult's passive leisure time is spent either watching television or listening to the radio.

This is the era of lifelong learning. Education must first prepare students to cope with life and aid them in enjoying living. Clearly, purposes of education include improving the quality of life and also preparing individuals for careers. A career is a course of events which constitute much of a person's life and involve that person's family. Career education today is unemployment insurance. Learning through life offers hope to those mired in stagnant or disadvantaged circumstances.

The diverse educational program of our college includes traditional classes, television courses, courses by newspaper, cooperative education, and in-plant education. The design of Coastline is based on quality, convenience, and economy. The institution is committed to flexible forms of instruction with the trends of our times.

**"Demographic Analysis of Curricular and Service Activities -
or Antidote to Seat-of-the-Pants Decision Making"**

Angelo Segalla, Director of Institutional Research
Golden West College

The Coast Community College District Demographic programs are unique in that they make it possible to collect data pertaining to course of study, student characteristics, geographic areas or any combination of the above.

The information obtained can also be compared to County census data to provide a variety of participation rates of district population in the college programs.

The versatility of the demographic programs allows users to get an overall picture of community college student enrollment and curricular patterns in the district or to concentrate on a specific area of interest.

Four innovations distinguish the Coast District demographic project from previous efforts conducted at other educational institutions:

1. Reduction of the unit of analysis from tract level (average size 600 acres) to 25 acres.
2. Creation of our own computer mapping system.
3. Data base configuration that allows multiple crosstabs with a minimal number of searches.
4. Interactive computer analysis and reporting system.

Primarily, the project was designed as a planning tool for use in:

1. Curriculum planning
2. Coordination of curriculum among the three colleges
3. General needs assessments
4. Services to the community
5. Outreach programs
6. Financial Aids, Grants
7. Federal and State data reporting.

The project is presently operational but all its capabilities will be completed by October 1, 1978.

"Design of Materials for Audio-Tutorial
and Computer-Based Learning Systems"

Robert R. Miller, President, Educulture, Incorporated
and Dr. Richard E. Ballard, Program Director
of Computer-based Learning Systems, Educulture, Inc.

The Audio-Tutorial Method:

Audio-tutorial is a form of programmed instruction based on the interactive use of closely-coordinated audio-cassette tapes and printed workbooks.

Each audio-tutorial series covers a complete subject, such as English Grammar, Rhetoric, Algebra, or Introductory Psychology. Within each series, the subject is further subdivided into chapter-sized, independent "modules." A typical module consists of a student workbook ("response manual") of roughly 32 to 48 pages and one or two cassette tapes. The tapes and response manual are used simultaneously to provide a duo-media presentation of subject matter.

In practice, the student is issued a response manual, the corresponding cassettes, and an inexpensive cassette player (or, in learning centers, the student may be directed to a carrel with a built-in tape unit). The voices on the tape direct the student, providing information, explanation, instructions, exercises, answers, warnings, reassurances, summaries, and, in general, the kind of personal teaching and assistance expected of a live tutor.

The response manual is divided into subsections (usually called "topics"). At the end of each topic the student is given a test (usually called a "topic review"). Based on the level of success in answering the topic review, the student is either sent on to the next topic or thoroughly critiqued with alternate explanations in a section called the "Back-up." The option of rewinding the tape and repeating the topic or a specific exercise is always available. There are three to six topics per module.

The module ends with a mastery test ("module review") that is self-administering and self-scoring. The module review confirms the student's mastery of the subject matter presented in the module. Separate diagnostic and mastery tests are available for teacher administration.

Each module is a completely self-contained unit, specifically designed for independent study. The module itself contains all the necessary program elements - presentation, explanation, exercises, testing, and scoring - so no special training is needed to administer the material.

Like all programmed instruction, audio-tutorial is self-paced - students learn at their own speed. In addition, Educulture duo-media is designed to provide a combination of visual and aural input that makes this audio-tutorial considerably more interactive than ordinary programmed textbooks.

It should be emphasized that Educulture audio-tutorial is not a collection of taped lectures requiring long periods of passive listening. The programs demand frequent response, and immediate "feedback" is provided. It is this interaction between tape, student, and the response manual that makes the material unique.

Developmental Studies: Whose Responsibility?

Ruby Herd, President, El Centro College

Less than one-half of the adult population of this country (46%) is considered proficient in dealing with the demands of modern living. Twenty-three million Americans, one-fifth of the adult population, have great difficulty in shopping, reading and filling out the most simple of forms. Another thirty-nine million barely meet the demands of their complex environment. (Adult Functional Competency, A National Study, 1975).

Students spend more time and effort in English and Communications courses than in any other subject required in public education. Yet all indications are that verbal skills are continuing to deteriorate at an alarming rate (Newsweek, December 8, 1975).

Research data support the diversity of socio-economic background, ethnic grouping, and levels of ability of the students who make up the populations in Developmental Studies programs (Coleman Report, 1966; Moore, Against the Odds, 1970; Cross, Accent on Learning, 1976). The ranks are swelling with the displaced homemaker, career-changers, citizens from all walks of life who are awakening to the need for new directions.

For the most part, students in Developmental Studies bring background experiences which are almost totally different from the experiences of their teachers and their fellow students. The resulting culture-shock can turn out to be a disastrous failure or a professionally rewarding learning experience for everyone concerned. There seems to be an emotional undertow in education especially powerful and complex in its effect on adults' learning (Bruffee, Chronicle of Higher Education, February 1978).

Roueché points out that low-achievers in high schools continue to enroll in

educational programs in college despite their previous lack of success because they "have no place else to go." Making it on one's own without education is virtually impossible in this age of sophisticated technology (Roueche, SREB Legislative Work Conference, 1976).

Colleges have made many kinds of responses to the needs of the low-achiever with varying degrees of success and/or failure. Evaluation of the results continues to be an overriding need for continued planning.

"DISCOVER: The Computerized Career Guidance System of the Future"

Hal Schrupp, Professor of Psychology and Counselor,
Orange Coast College

Over the past ten to twelve years, a number of guidance professionals have become increasingly committed to the utilization of the computer as a valuable tool to assist students with their career development process.

During this period of time, a number of national computerized guidance systems have developed, and now "DISCOVER" has emerged as the state of the art.

The central purpose of the DISCOVER system is to provide systematic assistance to its users in the making of educational and vocational decisions, and to provide direct access for counselors to large data files of educational and vocational information.

The group of computer programs is placed in a large central computer, which is connected by cable or phone lines to television-like terminals called cathode ray tubes (CRT). These terminals are placed wherever they are needed for maximum student and professional use. A printer is provided for each 1-3 terminals to provide a paper copy of anything the user may want to retain from interaction with the computer.

Due to the responsive nature of this kind of equipment, it is possible to develop interactive dialog between the user and the computer. The user enters responses by either typing at the keyboard or touching designated spaces on the screen with an electronic light pen. The computer, in responding to the user, will recall and use data which are stored in its attached disk files. These files contain pre-planned scripts, information about the user, and information about the occupations, schools and training programs which the user may consider.

The systematic career development process as formulated in DISCOVER includes:

- a. Assistance in clarification of the self-concept, i.e., knowledge of values, interest, and competencies
- b. Assistance in relating self-characteristics to occupational characteristics in order to formulate a list of possible alternatives
- c. Deliberated teaching of decision making and career planning skills
- d. Assistance with understanding alternate paths of education and training to specific occupational choices
- e. Assistance with implementation of choice, i.e., job placement, financial aid, schooling, etc.

As a by-product of the development of the DISCOVER system, the technical team designed and created a method whereby local sites could perform the following functions:

- a. To revise or add to the existing text from the terminal
- b. To develop new script material
- c. To update and localize all system files from the terminal.

Federal Funding for Creative Teaching: Some Perspectives

Helena Howe, President of Mesa College and AACJC
and Stanley Patterson, Acting Director Community College Unit,
U.S. Office of Education

It would seem that we must construe "creative teaching" in a broad sense; that is, the totality of the things we do, or refrain from doing, to (facilitate) learning - which in itself is an infinite concept - including addition of digits, modification of personal and public behavior and attitudes.

There is much evidence that we'll need a great deal of federal funding to launch the new programs and systems and responses to the demands of the market. We've got problems -

1. There's a decline in K-12 enrollments.
2. In many areas there's a veritable taxpayers' revolt because of inflation, rising taxes and assessments and the cost of other necessary services.

But we have a lot going for us, also -

Our national association has member institutions in over 429 congressional districts - and that's a lot of political clout.

There's no question about the demand for effective education, and herein lies the advantage possessed by the community colleges - we're on the edge of society always seeking new clients and a multitude of new delivery systems. We are flexible and able to respond to very rapid changes and forecasts provided we can predict, with some accuracy, what the new directions will be.

The federal government deliberately shapes policy, direction and the options of the future through the allocations of funds. This is an area of acute interest to us.

There is the vast need in developmental and compensatory education - frequently very expensive and difficult to commence properly. There is some controversy as to whether society owes each of us some mastery in computation, reading and communication.

We need help in developing alternative delivery systems palatable to faculty, but more importantly with assurance of quality and objectives of competencies measurement - so that learning can take place in the home, at the job, in the classroom, or many other places.

We need new kinds and forms of counseling to "support" our new students - and especially career advising in this era of external economic forces which behave in unaccustomed ways.

This list is intended as a partial indication of fertile fields for new initiatives.

Probably the biggest innovation of them all is a separate, re-organized cabinet-level Department of Education. Testimony regarding structure is in progress before the Ribicoff Senate Committee on Governmental Relations.

Handicapped Enrichment Through Academic Radio

Larry Cobb, Assistant Dean of the College of Extended Studies,
Project Director of H.E.A.R., San Diego State University
and Margaret Vernon-Holt, Director of S.C.A. Services, KPBS-FM,
San Diego State University

Project H.E.A.R. is an innovative approach to higher education that will permit the disabled of San Diego County to attend college-level credit and non-credit classes by radio.

The goals are to provide another mechanism to touch those hard-to-reach students mandated to the community college under Section 504 of the Rehabilita-

tion Act and to encourage students to continue learning, not only in the present program but in additional course offerings through television and even more traditional modes.

The subsidiary Communication Authorization has authorized the use of an FM sub-channel not normally used. Federal funds were secured through HEW, special receivers are leased by students during enrollment. Students may contact the instructors by telephone during the broadcast. In addition, each instructor will have instructional assistants who will contact students by phone or in person on a weekly basis to answer questions and handle problems.

"The Implications of Split-Brain Research for Education"

Kathy Lutz, Project Director, Behavior Technology Laboratory,
University of Southern California

Through the research done on split-brain patients, it was discovered that the two hemispheres of the brain process information differently. While the left side is more analytical, the right is more holistic, taking in overall characteristics rather than specific detail.

This research can be applied to educational processes to activate the lesser-used right side of the brain during learning to develop a more well rounded learner, through techniques such as using synthesis instructions, imagery or chunking.

Educators also find in this research possible reasons for learner differences. These differences in learning styles may then be capitalized upon by matching learning techniques to the appropriate styles or they may be compensated for by exercising the less dominant side of the brain to produce a better learner.

"Is Innovation a Four-Letter Word? - A Faculty Perspective"

Noel Korn, Manager, Media Development
Offices for New Dimensions
Los Angeles Community College District

Dr. Korn made his presentation in an anthropological setting. He paralleled the Community College model to a peasant village where a small number of people are in a self-sufficient environment and have an ethic based upon introspection and self worth. The faculty "process" is its product. Students are continually entering and exiting from the system while the faculty remains. In such a system one's status depends upon how one's peers see him. It is not necessarily dependent upon the teaching quality of the individual as much as upon being perceived by peers as being a "bright guy."

Change is considered a disruption by anthropologists and many educators. Changes bring on anxiety, not fear. In today's educational scene technological fears are pretty well dissolved because of collective bargaining. Change agents must be careful how they proceed. They need to know what is happening around the college. They must care for people's self esteem in their attempt to produce desired changes. In community colleges the trend toward reacting to change is an attempt to return to the past, and is using the past as a guide. Adjustments and changes to the existing system in attempts to meet the "new student" are viewed by faculty as something they must endure. Administrators see it as a challenge. In analyzing an institution with hopes of making changes the change agent must look at a college as a total system of groups with conflicting power sources. They must know that the first assumption to change is that it is disruptive.

"A Look at SIGI, an Interactive Computerized Program
in Decision Making"

Cynthia Johnson, Director of Career Planning and Placement,
University of California, Irvine

The speaker gave an informative discussion-demonstration on the use of the System of Interactive Guidance and Information, an effective application of the computer to career guidance services, developed by Educational Testing Service. This system aids students with their career objectives in four major areas. Using a computer terminal adapted to the program, the student first analyzes what he wants in a career. From here he is shown a list of what careers afford what he wants. Then he may secure the most up-to-date information about any and all of the careers mentioned. Finally, he learns what steps should be taken to pursue his chosen career or careers. Emphasis is placed upon this final step. This entire computerized program is used by the student as an important part of his career planning.

The program is for students without definite career plans (mainly lower division students). It takes about four hours on the average and the confidential information is retained for the students for future access and comparison. It is vital that the student has a follow-up interview with a career advisor and that he considers it only one aspect of the career planning services.

UCI, through a grant from the W. K. Kellogg Foundation, has been using this program since 1976 primarily with women and minority students, since the program is both confidential and totally unbiased. This year some 1400 students have had the opportunity to take advantage of SIGI, and the number will increase considerably next year and as time goes on. Once an institution has computer terminals - however many - the cost of the SIGI soft ware is \$1800 per year (the information is continually updated and expanded). The results of the SIGI program have been excellent, and the possibilities seem unlimited.

"Motivation of Students via the Vocational Skills Center"

William Dabney, Director, Eastbay Skill Center
and James E. Trocki, Occupational Coordinator

Motivation is a term used in education, but it can be difficult to observe. For those of us that provide education and training through the Skill Center, some of the facets of motivation are apparent on a daily basis.

First comes motivation from being paid. Money may not be the prime motivator in work settings, but for individuals who have no money and no resources to rely upon, it becomes an assurance that they will attend. If the person is not present, any educational achievements become impossible. Also, for individuals collecting welfare this training stipend becomes the first step to escape from the welfare rolls.

Second is environment. For the Skill Center environment has several components. The training setting at the Skill Center is an attempt to duplicate actual working conditions and within our budget make this setting as pleasing and comfortable as possible. Our 8-hour training day provides the ideal lead-in to an 8-hour job.

Environment is enhanced by the Skill Center instructional staff. Instructors are all practitioners of their trade or craft who have been vocationally certified. Their professionalism and experience provide an enthusiastic model for Skill Center Trainees.

A final factor of environment is our open-entry, open-exit concept. Utilizing this principle of enrollment, Skill Centers have individuals of varied skill levels working together in the same area at the same time. In that trainees at the Skill Centers are adults, a multi-level mixture encourages and fosters cooperation and expands the capabilities of instructors.

Learning a skill provides a third factor of motivation. With courses designed around learning packets and individualized instruction, trainees can see and measure their progress on a daily basis. A grading system based on: "can do, cannot do, has not attempted" eliminates the competition of grades, therefore allowing a trainee to concentrate on skill mastery. Vocational training has an advantage over academic education based on the fact that vocational training results in immediately observable and applicable skills.

A final factor to mention is the acquisition of independence. For many trainees the Skill Center provides their first adult opportunity to accomplish something on their own. They can prove to themselves that they are worthwhile and have the ability to stand on their own.

These, of course, are not all of the factors of motivation in a Skill Center but will serve to outline some of the reasons for our success.

"Putting it All Together: Consortia at Work
with Instructional Television"

Sally Beaty, Administrative Coordinator,
Southern California Television Consortium

Recent events such as declining enrollments and economic cutbacks have emphasized that the community college must become more sensitive to the needs of the community. To do this, the college cannot be limited to the defined structure of the campus or a certain student population profile. New populations of people must be sought.

Storefront class is one approach, but there are numerous disadvantages. Instructional broadcast television seems to offer a very good alternative. Not without problems of disorganization when implemented, ITV has successfully overcome most of these. Class evaluations show ninety-five percent of the

students felt that the convenience of learning by television made college possible in a way it had not been before. Seventy-five percent of the students stayed with the course, and achieved a level of success comparable or superior to students in similar campus courses. Sixty-five percent said they would try it again.

The value of the support services, and the positive role that can be played by coordinated faculty/administrative effort cannot be underestimated. The services required may not be the ones a college is accustomed to providing, but they are unquestionably important.

The frequent need for communication to and from the student, for example, is a necessary part of that student's survival. Maintaining this link with the distant learner demands not only an additional investment in instructor time, but a college-wide commitment to provide the support necessary to do the job.

Even the most excellently developed materials can profit from the local instructor's knowledge of the community in which the materials are used.

The myriad of options that can be offered, the personal interest with which an instructor responds to the needs of the learner, is often the difference between a student's success and failure.

"The Relationship of Cognitive Style to General Ability"

Dr. Robert Casey, Associate Professor of Instructional Technology,
University of Southern California

Dr. Casey discussed various attempts which have been made to measure cognitive styles. We cannot yet thoroughly categorize the qualities which students bring to learning; what is needed is a manageable number of categories describing persons in terms of channels by which they learn. Assumptions: general ability is made up of various components; everything measurable about human learning has probably already been measured but not accurately described and analyzed. At present learners seem to fall into four groups.

1. Those who handle the written word well, need written instructions, then learn by themselves (about 18 percent of the population)
2. Those with low verbal ability, need visuals paired with words, need frequent reinforcement and peer approval (about 22 percent of the population)
3. Those who get information as they need it, are satisfied by doing things (about 12 percent of the population)
4. The rest - more research is needed to define the learning styles of this large group.

About 68 percent of the population seem to work effectively with any learning style. What is needed is a small group of categories to describe learning styles with a high degree of predictability, to increase the probability of learning success through appropriate learning strategies.

"Some Practical Aspects of Memory Theory"

Thomas Nelson, Professor of Psychology
University of Washington

The purpose of the presentation was to provide educators with some practical aspects of memory theory that they might use in guiding students in the learning process.

Memory is conceptualized as being made up of two different processes. Short Term Memory (STM) refers to a "chunk" of information that can be recalled for as long as 30 seconds. Long Term Memory (LTM) refers to those that can be recalled for longer. Most individuals can retain approximately seven "chunks" of information on a short-term basis. Therefore, the way in which we encode information (dividing it into a smaller number of "chunks," for instance) is important for recall. Looking for meaningful sequences helps to reduce chunks.

Knowing the theme or main points of information to be received helps understanding and aids retention. (Students can benefit from cues beforehand as to what is to be presented.)

Long Term Memory can be aided by the organizational pattern used in studying:

1. Clustering - grouping items that have commonality
2. Hierarchical - listing approximately five items in a category
3. Narrative Chaining - making up a story to connect key words or concepts
4. Multiple Retrieval Paths - using more than one story so that if one chain is blocked another can be used.

Long Term Memory can also be aided by Natural Language Mediation (the use of acronyms) and by Imagery.

Higbee's Your Memory: How It Works and How to Improve It was cited as a good reference on the subject.

"Understanding the Motivation of Community College Students:
Implications for Instruction"

Myron H. Dembo, Chairman of the Department of Educational Psychology
University of Southern California

College instructors are concerned with "turning students on." This approach to motivation assumes that one needs to manipulate the traits or states of the individual to activate appropriate academic behavior. Another view of motivation, a cognitive approach, emphasizes an individual's thought processes and assumes that people decide what to do on the basis of their evaluations of the likely outcomes of different behavior. This latter view may offer more insight for improving the academic behavior of college students.

College students with a motive to succeed behave differently from those with a motive to avoid failure. Students who are motivated to avoid failure are often designated as having little motivation. Yet, these students spend considerable time and effort protecting their self-esteem by using strategies to avoid failure. They have considerable motivation but it is not oriented toward achievement.

Students attribute the causes of their success and failure differently. While success-oriented students attribute success to their ability and effort, failure-oriented students blame themselves for failure but take little or no credit for success. This may explain why many college remedial programs for low-achieving students are unsuccessful. Although the programs may improve academic skills, they often fail to change the student's attributions of success and failure.

The college instructor needs to understand the causes of different types of motivation and how his or her instructional procedures, behavior, and evaluation methods contribute to the development of motivation.

"Using Field Dependence/Field Independence to Place Students in Courses"

Bill Rosenthal
Assistant to the Dean and Associate Professor of English
St. Louis Community College at Meramec

The literature in the Field Dependence/Field Independence dimension of cognitive style suggests that quite different approaches to learning experiences may be necessary for the globally oriented, field dependent student and the analytically oriented, field independent student.

A current study at St. Louis Community College at Meramec using the Group Embedded Figures Test as the measure of Field Dependence/Field Independence shows that developmental students, both male and female, are considerably more field dependent than their regular entry counterparts and that field dependent students are more successful in courses which are oriented toward their learning style than in the more analytical atmosphere of conventional courses. The study shows that learning style is an important consideration in teaching and placing students who did not do well in high school (lowest 1/3, high school rank) and is much less important for those in the upper 2/3.

"Using the Mobile Education Concept"

Eleanor R. Frasier, Chairperson
Department of Home Economics,
St. Louis Community College at Florissant Valley

A new consumer education program is serving the St. Louis metropolitan area. The "\$O\$" - Consumer Education on Wheels" mobile program provides an innovative approach for reaching adults who would not otherwise seek information and assistance. Sponsored by the St. Louis Community College at Florissant Valley Department of Home Economics and Office of Community Services, the program is offered without charge to St. Louis residents.

The community education program operates out of a mobile classroom bringing consumer education directly to local community neighborhood locations. The specially designed 27-foot Winnebago motor vehicle has seating accommodations for up to 15 persons. When larger groups are served, the mobile unit is utilized in conjunction with a community meeting place. The van has its own audio visual equipment and resource information center to enable the instructors to have informative, interesting and informal presentations which encourage participant involvement in the learning situation.

Workshop presentations cover a wide range of consumer subjects. Topics include: credit; budgeting; metric education; consumer protection and laws; purchasing transportation, shelter, food and clothing; energy conservation; and consumer deception and fraud.

The program was developed as part of an experimental research project receiving funding from the Missouri State Department of Education Research Coordinating Unit and Vocational Home Economics Section. Preliminary research was conducted to determine the existence and effectiveness of other similar mobile education programs. Data obtained from this research was incorporated into the St. Louis Community College consumer education program.

"Utilizing Cognitive Style Mapping in Instruction"

Harryette Ehrhardt, Coordinator of Cognitive
Style Mapping and Resource Consultant,
and David Sims, President
Both from Mountain View College

(Abstractor's note: It is impossible to do justice to the outstanding program presented over a 6-hour span of time by Drs. Harryette Ehrhardt and David Sims.)

The topic centered about the use of Cognitive Style Mapping as developed and used at Mountain View College, Dallas, Texas.

What is CSM?

It is a means of giving the student an awareness of how he/she prefers to learn; of giving the instructor an awareness of the variety that exists regarding learning modes in his/her class; and providing another tool useful to a professional counselor in the recommendations given to students.

What are the techniques of CSM?

An instrument, based on sound and accepted psychological principles, is administered, scored and interpreted. As a result, the student's preferred learning style is "mapped." This forms a basis for counseling the student into those sections of a course that most nearly fit his/her "preferred" learning style. It can also be used as a tool to help counselors suggest alternative aids to learning.

Instruction is also "mapped" and the class schedule reflects the "style or styles" most encountered in each instructor's course. The student then can match his/her preferred style to that of the instruction offered for a given course.

Instructors can also plot, for each of their sections, the maps of that particular class and achieve a class profile that might aid in the awareness that all instructors need when they begin a term or semester.

What CSM is not.

It is not a test of intelligence. It is not a test of ability. It does not say you learn well or poorly. It does not predict failure or success. But it does not have to be any of these to be a useful tool. It is one of the few measures that can be useful to all four entities in the learning process: the learner, the instructor, the counselor and the administrator.

Frankly - with all the talk about individualizing instruction and the need to meet the needs of our "new clients," etc., etc., here, finally, is a method to heighten our awareness of how individuals learn. Its proponents do not make undue claims for success; they do not claim high validation and are still investigating means of proving the value of the program. However, based on 6 years of trial, change and study, they are convinced that it warrants everyone's attention.

They so convinced their appreciative, overflow audience!

APPENDIX

HEINICH-ELINE 5

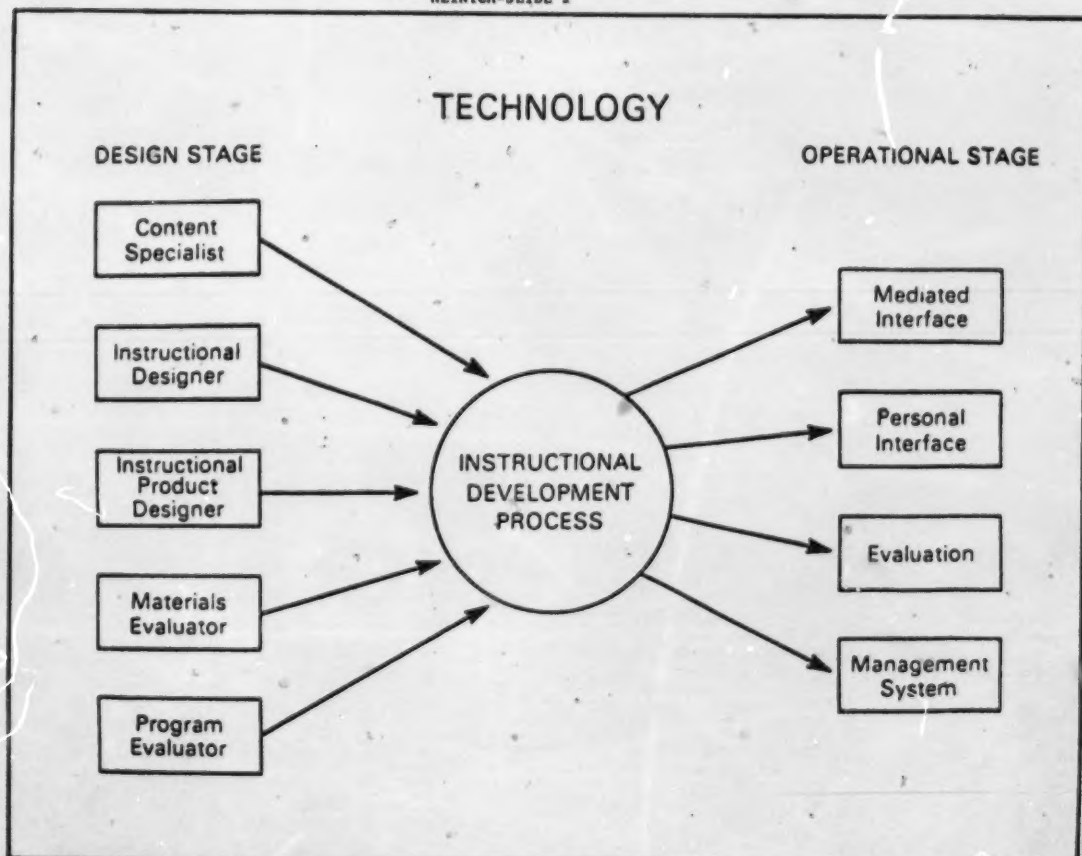
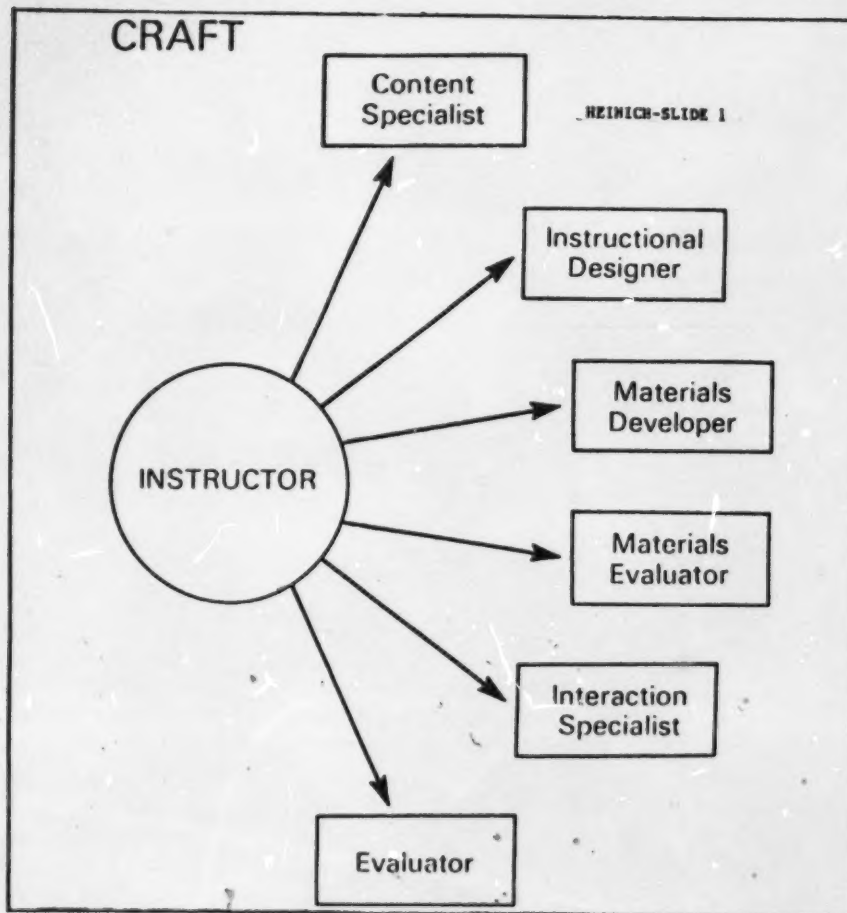
RAW MATERIAL VARIABLES (people- changing examples)			
		Uniform and Stable	Nonuniform and Unstable
Not well Understood	Socializing institutions (e.g., some schools)	1	Elite psychiatric agency
	Custodial institutions, vocational training	4	Programmed learning school
Well Understood			

HEINICH-ELINE 6

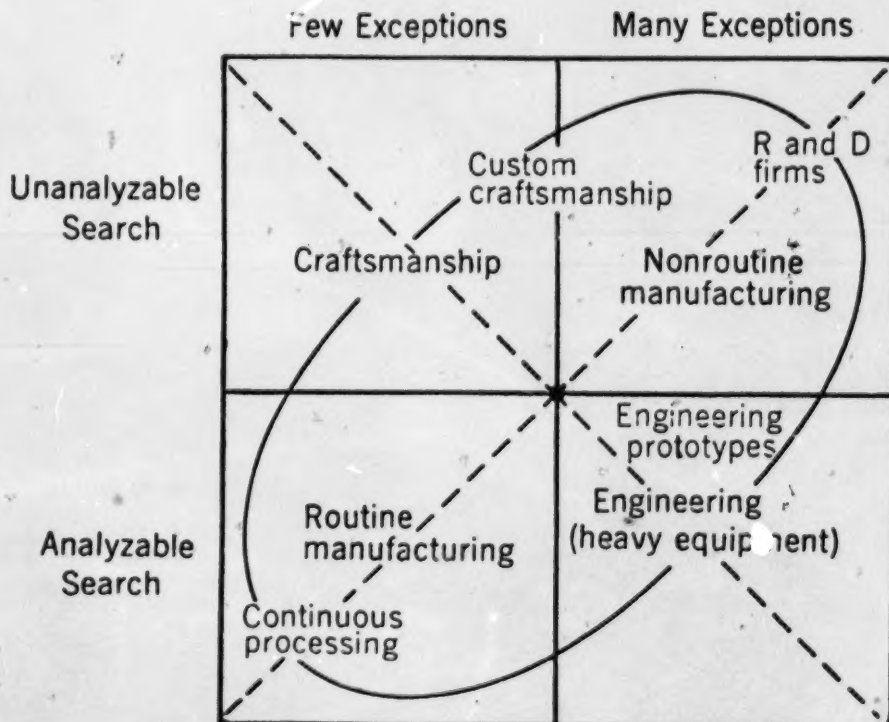
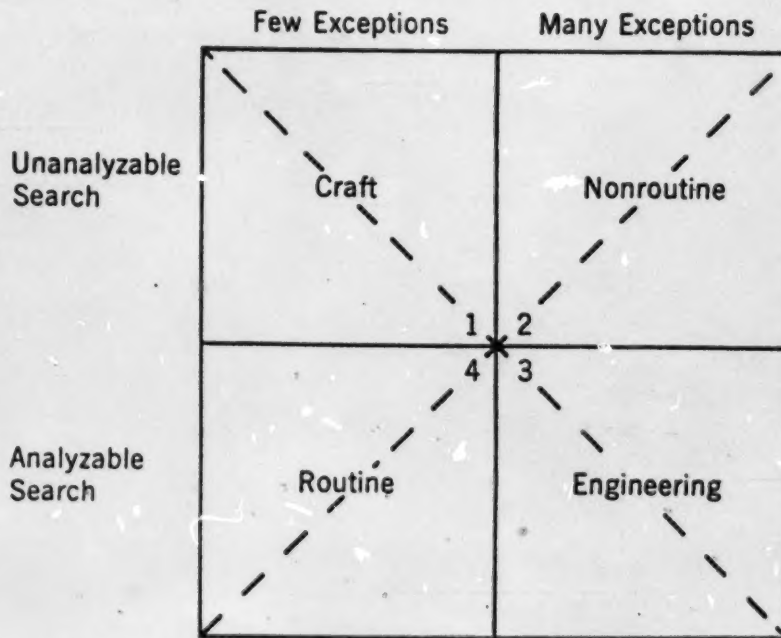
		Discretion	Power	Coordination within Groups	Discretion	Power	Coordination within Groups		
Administration	Faculty	LOW	LOW	PLAN	HIGH	HIGH	FEED	Instructional Development	
		HIGH	HIGH	FEED Craft	HIGH	HIGH	FEED Non-Routine		
Administration	Faculty	LOW	HIGH LOW	PLAN	HIGH	HIGH	FEED	Proctors	
		LOW	LOW HIGH Routine	PLAN	LOW	LOW Engineering	PLAN		

**Proceedings of the
National Conference On Innovation,
Diffusion, And Delivery In Education
March 6-8, 1978 • Newport Beach, California**

**Sponsored by
The League for Innovation
in the
Community College**



TECHNOLOGY VARIABLES.



RAW MATERIAL VARIABLES (people- changing examples)

	Uniform and Stable	Nonuniform and Unstable
Not well Understood	Socializing institutions (e.g., some schools) 1	Elite psychiatric agency 2
Well Understood	Custodial institutions, vocational training 4	Programmed learning school 3

UNIVERSITY OF CALIF.
LOS ANGELES

AUG 11 1978

CLEARINGHOUSE FOR
JUNIOR COLLEGES

	Discre- tion	Power	Coordi- nation within Groups	Discre- tion	Power	Coordi- nation within Groups	
Adminis- tration	LOW	LOW	PLAN	HIGH	HIGH	FEED	
Faculty	HIGH	HIGH	FEED Craft	HIGH	HIGH	FEED Non-Routine	
Adminis- tration	LOW	HIGH LOW	PLAN	HIGH	HIGH	FEED	Instructional Development
Faculty	LOW	LOW HIGH	PLAN Routine	LOW	LOW	PLAN Engineering	Proctors